University of Alberta

The Use of Computer Technology by Second Language Instructors: A Case Study

by

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It is difficult to speculate on just how, and how successfully, computers will have been integrated into language education even twenty years from now. What is certain, however, is that the quality of the role they play will be heavily influenced by the capacity of those who carry their use forward to heed the warnings and absorb the experience of those who have worked as pioneers in the field

(McCarthy, 1999, Concluding Remarks)

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I. Introduction

Computer technology is increasingly becoming a valued tool for the language teacher. Usage of CALL (Computer Assisted Language Learning) varies not only from individual to individual but also from institution to institution. As a result, research in the field has taken many paths – from software development to Computer Mediated Communication. The computer's ability to combine sound, image, text and video all together in an attractive multimedia package creates numerous opportunities in the world of language acquisition. Computers are becoming more and more powerful and most language departments in North American Universities are investing heavily in technology. Most job offers in the realm of language teaching expect the ideal candidate to have previous experience teaching with computers. There is a rising interest in making teachers technologically competent (Handler and Strudler, 1997; National Council for Accreditation of Teacher Education [NCATE], 1997; U.S Congress of Technology Assessment [UTA], 1995). Accordingly, CALL experience is now becoming a prerequisite of the language teacher. Even if CALL has encountered some criticism, it has seen a rising popularity in many institutions over the past ten years. As Robert Ayres (2002) describes, over the past decade, "the humanities have moved from being a relatively undemanding area (in terms of capital expenditure) to now requiring a large proportion of capital expenditure to be spent in new technologies" (p. 241).

We are therefore clearly in the technological age and the world of language teaching is still trying to fit or rather adapt to this age. However, it is crucial that we stop and question this infiltration of computer technology in the world of languages and in the

language classroom. Many have emphasized the need for careful integration of technology in language teaching curriculums:

> To integrate computer-assisted language learning (CALL), teachers must have regular access to a suite of computers able to accommodate whole classes. This has been beyond the capability of most schools.
>
> Before any investment may be recommended to supply sufficient resources that would enable CALL to be fully integrated across all classes and years, there would have to be some very sound reasons for its inclusion in the curriculum. Progress and/or improvement in pupils' attainment would have to be assured.
>
> Heather Rendall (CILT, 1999, para. 3, 4)

Others wonder whether the race is justified or whether we are simply getting carried away by a superficial trend. Phillip Hubbard (2003) conducted a survey of "unanswered questions in CALL" and many leading researchers showed skepticism regarding the direction CALL has taken over the last ten years. According to Levy (in Hubbard, 2003), "CALL seems to be lacking a clear identity and direction" in spite of all the literature published and all the international conferences (http://www.stanford.edu/~efs/callsurvey/index.html). Hemard (in Hubbard, 2003) further points out that "when identifying CALL activities in universities at large, it becomes clear that CALL research bears all the hallmarks of and limitations associated with that of the "cottage industry": it is still too fragmented, its approach is still too often empirical, based as it is on experience largely unsupported by reliable data and it is poorly recognized as well as funded by academic institutions". Felix (in Hubbard, 2003)

further notes: "we are still uncertain about how effective the use of technology in language learning is on the whole". Finally, Sachs (in Hubbard, 2003) asked "What are the "best practices" in CALL as established in prior research findings? In what environments or student populations are they most applicable?"

All of these worthy observations coming from well recognized experts in the field seem to point towards a common concern: the need for self-evaluation. At this point, CALL needs to know where it stands so it can be sure to move in the right direction. Yet this is no easy task since CALL comprises so many different aspects and all of them need to be evaluated separately and in relation with each other. Evaluation in CALL can focus on diverse topics such as implementation and integration of technology, students' perception and use of technology, software evaluation, CMC evaluation etc. One aspect of CALL which seems to have been underemphasized in previous research is second language teachers' perspective on the use of CALL. Technology is continually advancing at a rapid pace and teachers are expected to keep up, that is, learn how the innovations work and apply them in the teaching curriculum to enhance students' learning. Given the key role they play in the whole process, it becomes crucial to understand and evaluate the dynamics surrounding their use and application of technology.

Quite a few studies have looked at teachers' use of technology, but not many have focused solely on L2 teachers. The available literature explores different issues: what kind of technological training teachers are and should be receiving (Hargrave and Hsy, 2000; Johnson, 1999); how teachers perceive and make use of computers in the classroom (Ertmer, Addison, Lane, Ross, and Woods, 1999; Levy, 1997; Pilus, 1995; Walker, 1994). More recently, Lam (2000) conducted a study where she attempted to

understand why L2 teacher do or do not use technology. Egbert, Paulus, and Nakamichi (2002) examined how language teachers apply what they have learned in CALL coursework to their teaching and how they maintain their professional development. Gillepsie and Barr (2002) carried out a comparative study to see how the staff reacts to the adoption of CALL/C&IT (Computer and Information Technology) in modern language departments. Jones (2001) focused his study on the responsibilities of teachers and administrators which contributed to the success of CALL. All these studies indicate the amount of research that is necessary to really understand the dynamics surrounding teachers' use of technology. The need for evaluation seems to be an ongoing process; as technology evolves rapidly with time, so do the ways in which it is used.

For my study, I decided to conduct a survey which investigates different aspects surrounding the current use of computer technology by language instructors in the department of Modern Languages and Cultural Studies, East Asian Studies and at the Faculté St Jean at the University of Alberta. With the help of a comprehensive survey, I wanted to find out how language instructors in these departments understand and incorporate technological resources into their instruction, if they do at all. What are their attitudes and beliefs towards these resources? What challenges have they surmounted and what hindrances do they still face? This study will revalidate past findings and identify new patterns directing teachers' use of technology in the L2 context.

I think of this study as a modest contribution to the already existing body of research on successful implementation of technology in L2 environments. I hope that by providing insights into the dynamics surrounding foreign language instructors' computer use in this major institution, this study will help inform future decisions about how to

effectively integrate or manage computer technology into second language learning environments.

This study is by no means exhaustive, but it can be considered as groundwork to a larger and more extensive research project. My main research questions are:

- To what extent does instructors' personal and professional background affect their use of computer technology?
- What kind of effect does training or lack of it have on computer technology?
- What forms of technologies do instructors use the most and what factors influence their choice?
- What is their attitude towards computer technology?
- Has the technology implementation process been successful? If it has, what has contributed to its success? If not, what is needed to ensure future success?

II. Literature Review

A. Introduction

Research in the field of CALL has mostly revolved around students' interaction with technology. Some studies have tried to explain why teachers should or should not use technology, but not many have really studied the dynamics of teacher-technology interaction. The few studies which have evaluated teachers' use of technology found the issue to be multidimensional. The complexity of the interaction between teacher and machine extends beyond the educational utility. In an attempt to really understand this phenomenon, we are faced with a range of factors which have to first be analyzed on their own and then in relation with each other. This literature review looks at different factors which come into play when teachers use technology. The first section looks at possible relations between teachers' personal/professional background and their use of

technology. The second section focuses on the importance of training. The third section discusses the teachers' use of computer technology; the reasons and motivations behind teachers' use or lack of use of technology and commonly used computer applications. The fourth section examines teachers' attitudes towards computer technology. The last section circles the implementation of technology in institutions by looking at challenges involved, careful integration measures, and two extensive studies.

B. Personal / Professional Background

Many researchers have tried to establish whether instructors' personal and professional background influence their use of technology. Thus, they have tried to look for parallels between instructors' use of technology and factors like gender, age, regional background, education etc. Lam (2000) found that age, gender, attitudes towards technology, and teaching experience affect the use of technology but the results are mixed and there is no clear indication to what extent the variables are responsible for teachers' use of technology. Alternatively, male teachers have been found to be more favorable than female teachers towards technology in a few studies (Burke, 1986; Forgette-Giroux, 1990). Clerc (1985) and Mohammed (1994) found that age and teaching experience were positively related to the acceptance of technology, and yet Stenzel (1992) discovered that there was no relationship between age and the predisposition to learn about computers. In their research, Atkins and Vasu (2000) found that there was no relationship between SoCC [The *Stages of Computing Concerns Questionnaire* (Martin, 1989) which includes eight stages of concern about computing: contextual, information, personal, management, consequence on the self and others, collaboration, and refocusing] and the age of the teacher. On the other hand, they found a negative correlation between

age and TTI [*Teaching with Technology Instrument* (Atkins, Frink, & Viersen, 1995)] which was designed to assess training needs in three areas: writing and communication, information awareness and management, and construction and multimedia. The younger teachers scored higher indicating that they are more computer-literate than their predecessors. Then again, Burke (1986) and Forgette-Giroux (1990) found no parallel between teaching experience and positive attitudes towards computers. Through a questionnaire survey administered to 70 elementary school teachers in the United States, Marcinkiewicz (1993) discovered that specific personality traits such as innovativeness and self-confidence affected the amount of computer use in a positive way. Moore et al. (1998) saw a relationship between teachers' professional background and technology use. One of his studies involving 388 foreign language teachers in the United States showed that the level of education and amount of teaching experience were positively related with the use of computers and video for cultural instruction. Lowther and Sullivan (1994) emphasized the importance of teachers' needs, wants, beliefs, and practices, as well as varying dynamics in classroom settings in the process of developing technological applications. Fischer (1999) studied a group of teachers participating in the Multimedia Portables for Teachers Pilot. The participants exhibited high levels of motivation and self-reliance; teachers' attitudes were strongly related to their success in using technology. Most teachers initially had little or no IT experience but after a three-hours training session, they slowly took control of their own learning. They maintained a positive attitude which helped them make considerable progress in their technological skills and increase their confidence level. The teachers attained a certain level of professionalism and they increased their use of technology in class.

C. Training

Training and technical support are two key fundamental assets that need to go along with a technophilic institution. Many researchers stressed the importance of sound technical training. Egbert, Paulus, and Kamachi (2002) agree that teachers should receive a firm grounding in CALL theory through their academic coursework. According to Levy (1997), once teachers learn how the technology functions and how it can be used in a classroom, teachers can go on to develop their own tools and apply them in their teaching. Reed et al. (1995) found that teachers with computing knowledge were able to overcome technological hindrances more easily than those who had no computing knowledge. They also noticed that even one computer course can make a difference in teachers' attitudes; boosting their confidence and making them realize that computers can be effective and useful tools. Many other studies have in fact found a positive relationship between teachers' computer knowledge and positive attitudes towards computers (Bradford, 1984; Burke, 1986; Clerc, 1985; Kellenberger, 1994; Taylor, 1986).

Teachers can be surrounded by top-notch technology, but if they have not received proper training to use it, the technology obviously gets used wrongly, if used at all. Various studies support the fact that inadequate training and technical support usually guarantee poor results (Abdal-Haqq, 1995; Lam, 2000; Langone et al., 1998; Levy, 1997; Smerdon et al., 2000). These researchers noticed that the lack of appropriate teacher preparation and the absence of technical support resulted in poor use of technology. Other research also indicates a lack of professional development to prepare teachers for the integration of technology into the curriculum (Akins, 1992; Zammit, 1992; Winnans and

Sardo Brown, 1992). Not surprisingly, Galloway (1996) and Smerdon et al. (2000) found that most teachers learned to use technology outside of coursework.

Thus, providing teachers with technological training is crucial, but equally complicated since the next logical question is: what sort of training should be provided? McKenzie (2001) criticizes past training methods which were not quite 'generative', that is, they failed to alter the teachers' behavior for the better. A long list of studies shows how training failed to make a significant impact in teachers' use of technology. Langone, Wissick, and Ross (1998) noticed that even if teachers learn new skills, they do not always apply those skills in their teaching to see positive changes in the long run. Leh (1995) found that a group of language teachers who received a two-week workshop gained more confidence with computers but still did not show significant changes in attitudes towards computers. Debski (2000) further notes that even if teachers believe that technology has "empowering potential", they do not always know how to actually bring out the results in the classroom. In fact, much of the research focusing on teachers' technological training/education shows that the courses taken have a small impact on how teachers consider and put into practice what they have learnt (Cuban, 1996; Feiman-Nemser and Remillard, 1996). As an answer to all these problems, Egbert, Paulus, and Kamachi (2002) conclude that for teachers to actually use technology in their classes, they had to not only complete coursework, but also get the opportunity to practice, apply what they learned in their classrooms, and witness improvements in students' performance thanks to technology (p. 112).

According to Albaugh (1997), technological training is a complex issue revolving around three structures: "the historical resistance of teachers to use media, the nature of

teaching itself, and the life cycle of technological innovations" (p. 4). Amiri (2000) identifies two problems of IT training for language teachers: IT is continually advancing at a fast speed, changing and expanding; it is not clear where language teachers should stand in the IT world such that we end up wondering what set of core skills should they initially have? Amiri in fact proposes an actual shift in language teachers' status as *mere consumers* of computer-based materials to *consumers* and *producers*. According to her, language teachers need to learn programming so that they become back-end users who can develop CALL material tailored to their own classroom. Amiri definitely makes a valid point by saying that the language teaching profession needs its own IT professionals, but such a goal seems to be quite idealistic at this point in time. The idea of collaboration between a computer wizard and experienced language teachers probably sounds much more appealing.

D. Use of Technology

1. Reasons and Motivations for using technology

As the following list of studies demonstrates, teachers who choose to embrace technology do so for various reasons which range from institutional pressure to genuine belief in the technology's potential. McFarlane, Greene, and Hoffman (1997) found that 'educational utility' is only one element which shapes teachers' attitudes towards technology. The technology also has to be effective for job performance and it has to be easy enough to use. Cuban (1996) found that teachers adopted a 'practicality ethic' which compared the personal cost of integrating the technology against its return and its efficiency. Cuban's (1986) research showed that teachers embrace a technology when it helps them improve what they are currently doing thus guarantying better results.

Kennedy and Kennedy (1996) made an attempt to explain why certain technological innovations in the teaching profession work and others do not. They found that teachers' beliefs, attitudes, and teaching context were factors that affected the likelihood of the technology being used. Furthermore, teachers use technology since the computer provides some definite positive advantages in language practice. For instance, computers provide instant feedback correcting drill exercises and tests (Smerdon et al., 2000). Such innovations not only work at the convenience of teachers and students, but they also save them time. It is also true that certain computer activities have the ability to promote independent learning which is highly valued in today's communicative approach to language learning (Jones, 2001). Other research has shown that CALL applications enable experiential learning in multiple ways. Learners benefit from precise and effective feedback; they also get the chance to work in groups; exploratory and global learning are encouraged; access to authentic materials is made possible; learners also get the chance to work on their own if they choose to (Lee, 2000; Warschauer and Healey, 1998). McMeniman and Evans (1998) conclude that language teachers who witness evidence of improvements brought upon by new teaching methods are willing to change their practices and learn how to use the new technology. Dodigevic (1998) noticed a raise in teachers' use and acceptance of technology as it became less complex and the advantages of having it became more evident. Quinn (1990) points out that the medium is not the most important element - the way in which the medium is used shapes the results of instruction the most. In his study, Debski (2000) noticed that teachers would decide to participate in a new computer-enhanced project for various reasons ranging from pressure to implement computer technology in their instruction to the prospect of acquiring new

technical skills. Cuban (in Albaugh, 1997) found three key factors that influenced teachers' use of machines: "accessibility of hardware and software (is the equipment available and easy to use), implementation of the innovation (is there administrative expectation and support), and classroom and work settings (is the tool versatile and acceptable and does the setting accommodate the tool)" (p. 4).

2. Common Computer Applications

Teachers use technology in many different ways, depending on their skills, the facilities available, or classroom dynamics. Librero (1981) found that technology has mainly been used for presenting crucial information and Anderson (1989) saw technology being used to clarify concepts. Mohammed (1994) further notes that technology has been used for bringing inaccessible experiences into the classroom. The United States Department of Education (Smerdon et al., 2000) states that in most cases, teachers make use of technology to organize or complement instruction rather than as a means of instructional delivery. Thus, they use technology to save time and promote student learning outside the classroom. Strudler, McKinney, and Jones (1999) note that first-year teachers, if they use computers at all, hardly ever attempt to use applications more complex than word processing or drill and practice games. According to Smerdon et al. (2000), even more experienced teachers mostly make use of computers for word processing, spreadsheets, exercises, problem-solving, and to search the Internet. In Zhao's (2001) research, approximately 90% of teachers believed that computers should be used to involve learners in problem-solving activities. Approximately 81% believed that the actual educational significance of computers is in the enormous amount of information it can present. As for technology use, most teachers in research studies were

found to use word processors for communication and the Internet for lesson plan resources. Discussion groups and live chats were the least used forms of technology; this could be explained by teachers being concerned about losing control of their students or a lack of access.

The use of computer technology in L2 has seen an evolution over time. As technology advances, researchers discover more and more ways of adapting it to L2. Thus, Computer Assisted Instruction (CAI) has been easily accepted and adopted in many cases since it provides "instant feedback correcting drill exercises and tests, and immediate explanation of errors" (Decker, 1976, p. 263). For such reasons, many researchers in the field agree that the use of CALL particularly seems to help students in "spelling, writing and grammar practice" (Ayres, 2002, p. 248). Church (1986) claimed that "computer control of presentation and evaluation of exercises" is highly beneficial in language practice since it eliminates the time usually spent on correction. Thus teachers are left with more time and energy dedicated to the students (p. 256).

Levy (1997) carried out a comprehensive survey of relatively experienced CALL users in an attempt to see how they conceptualized and exploited the medium. One frequent reaction which came from the 104 participants was that they saw CALL in connection to learners' needs and the curriculum, not the computer itself. Also many participants declared that they adapted CALL applications based on a communicative approach where they insisted on the authentic context, problem solving and oral interaction.

According to Moore and Morales (1997), two important technological developments, multimedia computers and the WWW multimedia technology, have

shaped the fate of many CALL applications. CD-ROMs and videodiscs for instance, combine a multitude of media (text, graphics, sound, animation, and video) in one package which can be readily accessed on a desktop computer. Kern (1995) on the other hand, recognizes that L2 software supports individualized instruction since it gives the learner a certain amount of control. The learner can select any preferred topic, adjust the difficulty level, practice as many times as needed, and get feedback at any point in time. Similarly, Pellerin (1999) found that the computer allowed the learner to work at his/her own pace in a secure environment.

Jones (2001) further notes that many current designers of CALL programmes are conscious to develop software that can be used in or outside the classroom. As a result, learners have the ability to use the software with the help of teachers' directions or at their own pace following the autonomous directions. Jones also quotes the publicity for *Planet English* (http://www.planetenglish.com) – a programme which is supposed to support classroom teaching and also promote "independent learning strategies". Detailed instructions and directions appear on the screen, additional feedback is easily accessible and the navigator's interest is sustained by an array of tasks which are surrounded by attractive multimedia features.

Felix (1997) evaluated a CD-ROM called *Theater Interaktiv,* a programme which she herself developed. Only German, the target-language, was used in the programme which was comprised of a wide selection of written exercises with scored feedback switching between "games and serious work" (p. 2). The results of the evaluation were very positive since most of the learners not only enjoyed using the programme but they also made considerable improvements as indicated by the pre- and post-tests.

The Web is also seen as an important resource for L2 teachers and learners. It can provide easy access to a whole library of information which not only appears in the target language in an authentic context, but also under varying multimedia forms. Sussex (1998) insists that "...the open-endedness of the Web encourages learners to construct more of their own learning goals, paths and agendas" (p. 17). Of course, the Web also presents possible pitfalls since the learner needs to develop certain navigation skills to search for specific information. The other important fact is that information can often be inaccurate or simply wrong. Similarly, the quality of online exercises is often questionable and the feedback might not always be accurate.

Another computer application which combines recent developments in computer hardware and online networking is Computer Mediated Communication (CMC). CMC is only one of the many technological applications used in both L1 and L2 education, but some experts insist that "CMC deserves to be at the forefront of future research agendas" (Salaberry, 1999). During CMC, learners can communicate with one another through electronic mail (email), discussion boards or other software which relay audio or visual information, such as voice messages or streaming video. The communication can be in real time (synchronous) or at different times (asynchronous). Researchers have pointed out many benefits of using CMC. Mainly, it acts as a leveling ground since learners have equal "social and discourse rights" (Howell-Richardson, 1995). As a result, students who are usually more reluctant to participate in the normal classroom environment are encouraged to get involved in the communication process (Warschauer, 1996; Kern, 1995).

3. Drawbacks in Teachers' Use of Technology

As many studies indicate, teachers have not always been eager to incorporate technology in their teaching. Time is a factor which seems to be constantly appearing in studies which found that teachers hesitate or simply refuse to use technology. According to Jones (2001), the main reason why teachers do not take an interest in CALL is a lack of time since they are already struggling to keep up with their "conventional administrative and classroom duties" (p. 365). Pickard, Chan, and Tibbetts (1994) and Dunkel (1997) underline the fact that some teachers are simply not willing to make an effort to integrate technology into their teaching since it requires a major adjustment to teaching practice. Tutunis (1991) discovered that English as a Second Language (ESL) teachers stuck to traditional methods since they were not given enough time and financial resources to develop their technological skills. Many people in the field of language teaching felt that using computers to teach languages was simply 'extraneous' (Sanders, 1995). Time pressure both outside and inside the classroom makes it almost impossible for them to dedicate any more energy to computers (Lam, 2000; Levy, 1997a; Reed et al., 1995; Smerdon et al. 2000, Studler, Quinn, McKinney, and Jones, 1995). A lack of time to find and review materials is also a common reason why many teachers refrain from embracing technology (Librero, 1981; Zammit, 1992; Mohammed, 1994). Other studies have found that some teachers question the efficacy of the technology even while making use of it (Dunkel, 1987; Harvey, 1987; Hopwood, 1989). According to Egbert, Paulus and Kamachi (2002), the current literature shows that even when teachers are eager to incorporate technology in their instruction, their heavy coursework may not allow them

to do so. It is true that incorporating technology in the classroom takes time – especially when one has to learn how the technology works and has to apply it.

Certain teachers' lack of faith in technology can also be explained by the large amount of poorly designed software or applications on the market. Many teachers might have tried some CALL material but were not convinced of its effectiveness, judging that it was poorly designed to teach. On that note, Laurillard (1994) argues that too often the use of new technology has been based on what it can offer rather than the ways in which students can use it. Such a perspective has only led to poor results and limited applications. Deficient CALL software has often contributed to an atmosphere of mistrust among teachers who tried that very software. In many cases language software has failed to prove effective in teaching because of either poor technical or pedagogical designs. According to Albaugh's research (1997), teachers are often apprehensive of innovations partly because they might have been implemented without proof of effectiveness. Thomé (1989) reviewed eight German CALL programs with an evaluation list containing 221 criteria, and all programs tested revealed major deficiencies in pedagogical and design quality. Desjardins, Martin and Walti (1992) critically analyzed forty six CALL programs for German as a foreign language on the market, and they concluded that the quality of the programs did not correspond to their price. In reaction to such findings, Kunzel (1995) admits that the currently available language programs are not matching the expectations of the profession. Quinn (1990) interestingly adds that the lack of really valuable software on the market can be explained by the simple fact that in most language departments, the production of programs or applications is not taken into consideration when it comes to promotion or tenure. The irony is that developing

elaborate language software can easily require more effort than writing a book. Poor CALL software often confirmed teachers in their belief that the traditional classroom was more effective and better suited to teach languages than computers. On the other hand, language teachers might not have perceived CALL positively for other practical reasons. Users of CALL may experience frustration and distraction if unable to understand and navigate an application, or if the learner is not computer-literate, which is often the case with older students who have not been exposed to computer technology (Jones, 2001).

E. Attitudes

Teachers' attitudes towards technology have definitely varied from negative to positive since the early years of CALL up to now. Attitudes towards technology depend on various factors such as personal convictions, computer knowledge, teaching context etc. In the early years of CALL, the fear that computers would replace teachers was very present (Evans, 1998; Cuban, 1986; Marcinkiewicz, 1993). As Sanders (1995) puts it, "awe, fascination, disbelief, disapproval and fear" are some mixed feelings, which were provoked in the beginning stages of the Computer Revolution (p. 7). Dunkel (1987) predicted that the "computer will be just another in a series of highly touted technological tools that have neither revolutionized learning nor lived up to initial promises" (p. 254). Burston (1996) notes that computers do not save or reduce the workload; why then would teachers feel the need to move from traditional methods to new methods which would require mastering the new medium? Thus, until recently, CALL was relevant mainly for those with a specialized interest in the area and was considered merely a 'sideshow' (Hubbard, 1996). Moreover, because of the invasion of computer games, video, and film as entertainment, many teachers were not convinced of the effectiveness of computer

applications used as an education tool (Albaugh, 1997). In many cases, teachers did not find the need to incorporate technology in their teaching curriculum for the simple reason that the traditional methods were successful enough. Since they mastered the art of teaching foreign languages in a traditional classroom setting, adopting CALL would entail learning how to use a new tool which has not totally proven itself. In the same context, Gun and Brussino (1997) point out that "teachers with full workloads and satisfactory outcomes from existing methods of course delivery are not necessarily motivated to venture into the unchartered waters of technology-based developments which are sometimes hard to access, often unreliable and always costly" (p. 1). Other research found that teachers who did not master technology are less likely to use it because they lacked confidence to use it in front of their students (Zammit, 1992; Winnans and Sardo Brown, 1992; George and Camarata, 1996). Amiri (2000) asked certain language teachers taking CALL modules whether they thought they would make good programmers. She noticed a low confidence in their skills - 90% were convinced they would make poor programmers. Hargrave and Hsu (2000) found similar results while studying K-12 teachers. They lacked confidence in their skill to use and incorporate technology in their teaching.

On the other hand, in a study carried out by Zhao et al. (2001), very positive results were found. They carried out a survey of an "exemplary" group of teachers who use (or plan to use) technology. The teachers were selected based on their previous teaching experience, experience with technology, and plans to use technology. The majority agreed that using technology had positive consequences. More than 80% revealed that computers helped them reach a higher productivity in their work. They also

believed that computer use helped their students become more active thinkers. It should be noted here that the difference in attitudes comes from the fact that these teachers are experienced technology users. Consequently, they know how to make it work and benefit from it. Their level of confidence with computers was also very high and they admitted that they were at ease learning with computers and felt no threat whatsoever.

In spite of all the problems teachers may encounter in their technological journey, results are often positive and rewarding. Quinn (1990) points out that good CALL materials have certain valuable effects on teachers. For instance writing a good CALL lesson requires a good organization where components of the lesson have to follow a logical sequence, building on topics covered in the past. Quinn also notes that the use of CALL benefits the way we communicate with others since it requires clarity.

F. Integration of Technology

1. Complexities of Technology Integration

The integration of technology is probably the most important but also the most complex aspect in the whole 'teachers' use of technology' debate. Proper technology integration in the language teaching curriculum can generate amazing results, but poor integration guarantees mediocre results. Unfortunately, as most of the available literature on the matter indicates, most institutions have not experienced the success they had hoped for. It thus becomes obvious that poor integration of technology in educational settings led to its poor use. The language lab for instance was a significant innovation but, as a consequence of the lack of proper training for teachers in using it efficiently, it failed to make a significant impact and really revolutionize language teaching and learning in most sectors of education (Davies, 1997). Initially, technology developers

made pretentious claims to revolutionize the world of education. Yet, in the classroom, teachers never really adopted the new tools, and no significant academic enhancement took place as a result of embracing technology. Results have been more or less the same while teaching tools changed (Oppenheimer, 1997). Also, Gratton (1998) points out that while technology has advanced at a fast pace, teachers have not been able to keep up or even integrate it productively in their teaching. Levy (1997) even suggests that the rate of technological change acts as a barrier to technology use. Also, numerous institutions have become overly technophilic and spent large amounts of money on technology without consulting teachers. Connor (1984) talks about the 'technological power game' in our society where those teachers who fail to keep up with technology are often poorly perceived. Flannagan (2002) further adds that schools have focused on investing in equipment or machines, setting up sophisticated infrastructures for the new technologies without paying attention to the real issue: how these computers will enhance learning. Hence, having computers and networked schools does not guarantee that learning will take place. Investing in teacher training is simply the next logical step and yet very few institutions have been able to allocate considerable funds for it after the initial purchase of computer equipment. This is clearly one of the main reasons explaining why new technologies fail to live up to their expectations (Oppenheimer, 1997). McKenzie (2001) also condemns eager institutions which 'put the horse before the cart', investing in equipment but neglecting training. As a result, they often end up with the 'screensavers' diseases' – glowing untouched monitors. Evidence from Market Data Retrieval (MDR) (1999) shows that the majority of American teachers (60%) receives only five hours of technology-related professional development annually.

According to Terrel, Drungus, and Redulic (1995), some teachers may dislike a higher authority dictating their behavior and as a result choose not to use the technology. Lam (2000) points out that 'top-down' technology implementation may not be well-received by teachers. In her study on technophilia and technophobia, she also suggests that language teachers avoid using computer in their classrooms not because they are scared of technology (technophobes) but because institutions do not consider it a priority to train teachers in computer use. As a result, they are not properly equipped with the right technological knowledge to reach their goals in the classroom. Ironically, Connor pointed out similar institutional weaknesses in 1984: "The biggest mistake made in educational settings is to ignore the personnel needs that result from decisions to purchase equipment...Yet we install a new language lab or add microcomputers to our media center, forgetting that additional staff is required to administer the system, do repairs, and, most important, educate potential users and influence the quality of materials" (p. 62). Such poor administrative decisions have had drastic implications for the state of CALL today. On that note, Cuban (1996) points out how results have been disappointing: "patterns of teacher use similar to those that accompanied earlier technologies billed as revolutionary seem to be recurring: a small cadre of determined users amid a large majority of casual and nonusers. While school administrators have automated most managerial tasks, classroom teachers have been selective in choosing which technologies to use" (http://www.edweek.org/ew/vol-16/06cuban.h16).

On the other hand, according to Olsen's research (1980), many departments refrained from investing in technology due to the high cost of computers, the costs of having technical personnel, and the negative attitudes of many teachers towards the use

of CAI in the L2 curriculum. Others point out in their research that numerous teachers could not use technology successfully due to a lack of access to multimedia facilities and materials (Akins, 1992; Moore, Morales, and Carel, 1998; Loehr, 1996; Smerdon et al, 2000). Grau (1996) examined the technology preparation component of teacher pre-service education programs and the participants felt that the school lacked resources which could help them update their knowledge of technologies. Leh (1995) noticed that some teachers shared positive attitudes towards the use of technology in language teaching and yet they used it to a minimum since they had poor access to equipment and limited skills of how to use the technology. Sofranova (1993) found that 68 % of teachers in three Russian schools had positive attitudes towards the use of computers and yet less than 8% used them. Ironically, Zammit (1992) found that teachers who did have access to facilities felt they had to use the equipment more often than was necessary in order to justify their use of it. Thus integration of technology is quite a complex process where many different factors have to be taken into consideration. Amazingly, most studies point out similar weaknesses and yet we see the same mistakes again and again. A survey of 80 French and English teachers in Canada, conducted by Lamerand and Tracy in 1975, revealed that technical support, easy access to equipment, and the chance for teachers to have a say in the implementation of television in the classroom serves to boost its acceptance.

All these examples indeed indicate that integrating technology properly into the teaching curriculum is no easy task. While some decisions seem to be uninformed, others can be explained by a lack of financial resources. The positive aspect of these studies is

that they have the ability to inform present and future technology projects so history does not repeat itself.

2. Careful Technology Integration

Fortunately enough, many studies have explored the challenges of technology implementation and agreed upon integration methods. While there is no magical recipe yet, researchers have gathered sound knowledge about technology integration from both successful and unsuccessful studies. Gillespie and McKee (1999) argue that all staff on a course must mutually agree on a precise CALL strategy. Instead of one or two professionals making all the decisions, the effort should be 'peripheral' that is coming from every hierarchical level. Kohn (1995) further adds that CALL – and other technology – should not be brought in piecemeal, but be part of a structured learning environment. Thus in many cases, it can be seen that institutions did not exactly make an attempt to integrate the technology failing to see beyond the benefits of the technology.

Levy (1997) suggests that teachers should adapt their use of technology in the classroom by matching their philosophies of language teaching and learning to the capabilities of the very technology. According to Carballo-Calero (2001), language teachers in this day and age need to understand the implications of using computers as another tool for language learning and accept their changing role of teacher to that of 'mentor and consultant'. As Jones (2001) argues, in the end, CALL leads to autonomy but at this point it is not a 'self-access operation'. Its success and effectiveness lies in the hands of the teachers. Zhao's (2001) study of technology use by exemplary teachers revealed that most of them adopted a 'progressivist' approach to pedagogy where they stress "developing higher-order mental independence through the use of flexible,

adaptive teaching methods" (p. 32). According to McKenzie (2001), the real challenge of technological training is to inspire and motivate teachers to launch these curriculum rich activities with the appropriate tools.

According to Quinn (1990), it is obvious that when it comes to the integration of technology in language departments, the most important aspect is staff training and yet it is most neglected. This is understandable as well since language departments all around North America are constantly faced with budget cuts. It becomes a question of survival. They barely have enough money to buy the equipment – investing in staff training is almost impossible. Albaugh (1997) proposes some "concrete guidelines based upon what is known about the life cycle of technology, teacher adoption of innovations, and the nature of teaching" (p. 5):

- Provide teachers with numerous opportunities for training and practice;
- Provide administrative support for training and for taking risks to try new approaches with technology;
- Acknowledge the professional concerns of the teacher and base implementation of evidence of what works;
- Acknowledge the teachers' need for practicality while encouraging risk-taking;
- Provide post-training follow-up.

Jones (2001) proposes 5 steps for a rich and productive exploitation of CALL material:

1. Recognize that students can only learn from computers with the instruction and supervision of teachers: CALL will not be effective without this essential interaction of teachers and students
2. Respond to the fact that modern language learners are likely to be interested in and experienced with computers, and ready to learn through CALL
3. Revise the curriculum so that CALL plays a key part in it, both in classroom or laboratory and self-access modes

4. Give committed teachers adequate training
5. Give teachers time to develop pathways for their learners

McKenzie (2001) also proposes a list of effective strategies and projects which can help teachers learn technology best:

1. Professional Development Plans
2. Study groups
3. Curriculum development / Invention teams
4. Technology coaches, mentors and cadres
5. Informal support groups and support staffing – "Just in time support"
6. Help lines & FAQs
7. Excursions: School visits, Work Place Visits, Conferences, etc.
8. Online learning
9. Orchestration
10. Resource issues
11. Measuring return on investment

A more recent group of researchers emphasized the importance of collaboration among instructors using technology. McKenzie (2001) talks about the benefits of having "informal support systems, partnerships, teams and collaborative structures" (http://fno.org/mar01/howlearn.html) work together in the most efficacious manner. Similar results are pointed out in a research carried out by Ward, West, and Isaak (2002). Teachers working together can create a rich network of knowledge and skills which can only lead to successful technology utilization (Rosaen, Hobson and Khan, 2003). Moreover, Stallings and Koellner-Clark (2003) looked at the positive effects of using multiple teaching strategies and collaboration among graduate teacher students. Participants paired together combining efforts and using educational tools such as WebCT in their teaching. Collaborative teaching was found to be invaluable as a means

of professional development. Pairing up to use a variety of technologies not only allowed the graduate students to make productive use of their time, but also provided the advantage of on-the-job professional development.

3. Extensive Studies

The following studies are quite enlightening since they show to a large extent why certain institutions are more successful than others when it comes to integrating technology. It goes without saying that numerous factors are involved in the whole equation; yet what really stands out is the fact that successful technology integration is, more than anything, a collaborative effort.

A comparative study conducted by Gillespie and Barr (2002) shows to some extent what determines the successful implementation of CALL in an institution and what guarantees its failure. They compared the attitudes of staff towards the implementation of CALL in three universities: the University of Toronto, the University of Cambridge and the University of Ulster. This study allowed Gillespie and Barr to understand how different factors enhanced or inhibited the adoption of CALL by staff in the different institutions.

Course design was one factor which affected the way staff perceived CALL. Students at Toronto had approximately twice as many hours dedicated to language learning than students at Cambridge and they used CALL material on a regular basis unlike their peers at Cambridge. The concept of Computer Assisted Language Learning thus seemed almost irrelevant to students at Cambridge since they did not see it as essential to complete their courses successfully. The presence of support staff was also a determining factor since it proved to be extremely helpful in the preparation of CALL

courseware or the purchase of suitable programs for the academic needs of students. Having a support staff may also have encouraged language teachers who were not interested in developing or use CALL applications either because they lacked the time or the technical knowledge to design such programs.

While attitudes towards CALL at the University of Toronto appear to be very positive, they are less so at the University of Cambridge mainly because C&IT and CALL are not seen as crucial components of language courses but rather as optional extras which are present for students to use occasionally. Moreover unlike Toronto, students are not assessed on their use of CALL. The University of Toronto was the one university where the use of technology was the most extensive; where staff seemed to have realized the potential of CALL taking full advantage of it.

Gillespie and Barr found some other important factors, which shaped the fate of CALL in those three institutions. Among many others, leadership played a crucial role since some seniors strongly encouraged the more doubtful or unenthusiastic staff members to explore the benefits of using CALL/C&IT. Infrastructure, taken in a more general sense, comprising of "equipment, organization, course design and learning culture" (p. 129) was also a key factor. For the successful implementation of CALL, large investments in hardware, software and multimedia language laboratories is necessary and wise administrative structures have to be set up. Only then will staff willingly embrace CALL and use it in their teaching.

At the University of Toronto, there is a well-developed network: staff and students have adopted the Web in language teaching as the primary way of presenting course material, such as lecture notes and assignment details. Staff training has also

proven to be crucial to the general adoption of CALL/C&IT. As long as staff remain apprehensive, unwilling or unskilled they will not implement technology in their teaching. Thus many staff members in the three institutions have become computer literate. Staff attitude is also a determining factor for the fate of CALL. According to the research of Gillespie and Barr, staff members were classified into three categories: Radicals, Pragmatists and Conservatives. According to their findings, most teachers fall in the category of pragmatists since they only adopt "this new technology and these new methods when they see clear evidence that they add value to their teaching and enhance the performance of their students" (p. 131). These results agree with those of Lam (2002), who maintains that staff will use technology if they see the potential benefits it may bring. According to Gillespie and McKee, Pragmatists are likely to use CALL with enthusiasm when the following conditions are fulfilled:

- Extensive, up-to-date facilities are available
- The majority of staff are computer literate
- The culture of teaching and learning is progressive and therefore open to new methods
- Course structures incorporate the use of C&IT in a significant way
- Course assessment is reliant, to a greater or lesser degree, on C&IT

(p. 131)

In another study, Moursund and Bielefeldt (1999) collected information on 416 schools, colleges, and departments of educations (SCDEs) in the United States. The respondents (mainly deans and college faculty) were asked to evaluate their own institutions according to the following criteria: "coursework, technology facilities and support, skills of graduates, and field experience opportunities" (p. 4). When it came to factors which helped access to facilities and support, faculty commitment (82%) and

financial resources (73%) had the highest number of votes. On the other hand lack of financial resources was the main reason reported to hinder the promotion of technology facilities.

As for technology integration, the most helpful factor was reported to be professional development (68%) for college faculty followed by technology infrastructure (50%). As for hindrances to technology integration, lack of infrastructure (52%) and lack of time (29%) were the main reported causes. When asked to rate various sources of technology training for preservice teachers, technology courses within the teacher education program were seen as essential. Respondents were also asked what they thought the role of technology coursework was. They agreed that the courses build self-confidence and skills but they need to be followed up with actual use of technology in other coursework. Respondents also deemed technology plans to be essential. Among other things, a good technology plan should include specific goals and objectives and at the same time include integration with the curriculum. Thus this research showed that technology integration necessitates a global approach which takes into consideration facilities, professional development, coursework, and field experience. A main helping/hindering factor common to most of the above mentioned criteria was money. Commitment was also a major driving force in successful technology integration.

The results from these two studies agree with other research such as the one carried out by Atkins and Vasu (2000). They looked at middle school teachers' concerns and competence in their use of technology while teaching and how these corresponded to the level of technology integration in their school. They found that the most 'successful' school had financial resources, supplies, technology support staff, and strong

commitment from the head administration. More so, all teachers were required to go through technology training which was provided at their convenience. Thus, these studies offer a lot in terms of what is needed for a successful integration of technology in an institution. However, it would be even more interesting and rewarding to look at the consequences of successful technology integration. Is academic performance actually improved? Is student learning enhanced? Are there drawbacks?

G. Conclusion

In sum, this literature review shows that the use of technology in L2 teaching is a multidimensional phenomenon which depends on various factors. We saw the importance of proper training which can result in teachers' efficient use of technology. We also saw what motivates teachers to integrate computers in their teaching and which computer applications they use in the L2 context. Teacher attitude towards computer technology has also been found to be a key issue which often depends not only on the innovation's success or failure, but also on teachers' personal convictions and beliefs. Finally this literature review focused on the complexity of technology integration in the language teaching curriculum. A limitation of this literature review is that it does not focus solely on L2 context. As well, several studies which did deal with language teachers looked only at certain particular aspects surrounding their use of technology, excluding others.

This study will attempt to address some of these limitations since it will specifically examine L2 teachers. Thanks to a comprehensive survey across different language departments, this study will try to reevaluate certain findings already mentioned earlier, but also, attempt to evaluate the position of L2 teachers in this technological age: How well are they adapting to the technological challenge? What are the problems or the

advantages they are coming across and what can be expected in the years to come? How do they incorporate technology into their instruction? Finally this study will attempt to find new patterns channeling the use of technology by L2 teachers.

III. Research Methodology

A. Participants

The research population consisted of foreign language instructors at the University of Alberta who teach courses offered for credit. They were from three departments: Modern Languages and Cultural Studies (MLCS), East Asian Studies (EAS) and the Faculté St Jean. For the purposes of this study, I only considered instructors teaching up to second year courses since they are the ones who mostly make use of technology. Ninety surveys were sent out and 42 were returned (46%). Surveys were received from ten different language departments. In MLCS, participants were from the following areas: French, Spanish, German, Italian, Russian, Polish, and Ukrainian. The participants from EAS came from the department of Chinese and Japanese. At the Faculté St Jean, the participants were from the department of French. Figure 4 gives more details about the percentage of participants from each language department. Language instructors participating in the survey ranged between 20 and 60 years. 71% were female while 29% were male. There are four teaching statuses which divide the participants: Permanent, Sessional, GTA (Graduate Teaching Assistant), and GTA – assistants. (Training Graduate Student Assistant). It should be noted that the GTAs actually teach full size classes on their own, but they work with a main coordinator outside classes. The Training GTAs work in collaboration with a Permanent Professor, an experienced GTA,

or an experienced sessional. Years of experience of the participants ranged from 0 to 35. Figures 1 – 4 in the next section (Results: Analyses and Discussion) provide detailed results for each of the above mentioned categories.

B. Instrument

I designed a survey containing a total of 26 questions drawing from questionnaires by Ruthven-Stuart (2003), Lam (2000), and Scott (2002). I chose questions which were most relevant to my project; which would help me answer my research questions. For the ease of data analysis, I transformed most qualitative questions into quantitative ones. I then gathered four teaching colleagues to go over the questions in group. Together, we identified the questions which might have been unclear, repetitive, or irrelevant. Also, they helped me find the most appropriate order for the questions. With the help of my supervisors, I came up with a final version of the survey which appears in Appendix 1. Information and consent letters appear in Appendix 2.

The first part of the survey mainly contains demographic variables such as gender, age, teaching status, years of experience, and the amount of training received for technical and pedagogical aspects of language acquisition technology. The second part focused more on participants' training where they were requested to indicate the number of seminars, short courses, or university courses they took in the past. They were also asked to rate their own knowledge about how to effectively use a computer for the purposes of language teaching. The participants also had to indicate to what degree they kept up with current publications/research about CALL.

The third part of the survey deals with the ways participants use technology in their teaching if they did at all. Participants were requested to fill in a table, indicating

what form of technology they used, to what end, and to what extent. They were also asked to justify why they chose to use technology or not. This section also measured the interest of the participants to receive further training in language teaching technology. Participants were further asked where they used this technology (CALL labs and Smart classrooms) and how often they had access to those technologically equipped rooms. Another question asked participants whether they had their own student-targeted homepage.

The fourth section of the survey focused on attitudes towards technology. The participants were asked to rate their own attitudes and those of their students towards technology in L2 acquisition. They were also asked about their perspective on the future of computers in L2 acquisition and about the success of integration of technology in the language teaching curriculum in their institution. The last question asked the participants what they thought is the best practice of computer technology in L2 teaching/learning.

Since I wanted to know as much as possible about L2 teachers' technology use, I also focused on the major variables surrounding teachers' use of technology. An entirely qualitative survey might have been more thorough, but I felt that a quantitative approach was enough to capture the essence of technology use among L2 teachers. I also included some open-ended questions which gave precious qualitative data.

C. Procedure

The first step was to get the authorization to conduct the survey; the second was to get the survey approved by the Research Ethics Board. Once both approvals were granted, I gathered a list of foreign language instructors teaching 100 and 200 level courses in MLCS, EAS and at the Faculté St Jean during the Fall 2003 & Winter 2004

semesters. I contacted the coordinators for each language area via email notifying them that instructors in their respective departments teaching 100 and 200 level courses would be receiving the survey in their work-mailbox the same day. Thus the concerned instructors each received an unsealed envelope containing an *Invitation to Participate in Research / Consent to Participate in Research form* and the survey. Participants were requested to fill in the survey and return it in the sealed envelope within ten days. They could either leave the survey in my mailbox or in a large envelope outside my office. Participants at the Faculté St Jean had the option to send me the sealed envelope via campus mail. Thus, I knew who had received a copy of the survey, but I could not identify returned surveys since responses were strictly anonymous. Three days before the deadline, I sent another email to the language program coordinators to remind instructors to participate in the research if they had not already done so.

D. Data Analysis

Quantitative data were compiled and percentages were calculated to present the results. Qualitative data was also added where relevant. For certain questions which had strictly qualitative responses, the results were categorized such that the most common responses were grouped together and percentages were once again derived.

E. Technological Resources

The University of Alberta offers quite a few technological resources to students and instructors. The Arts Resource Centre (ARC) is a unit providing physical resources (e.g. Audio tapes/CD-ROMS/Videos) and expertise to instructors and students. Some of the facilities available at the ARC include Audio/Video Self-Study Labs, CALL lab,

Language Teaching Lab. Also, the ARC offers instructional support to instructors who are willing to integrate technology in their teaching. Instructors from the Spanish department have access to a sophisticated CALL lab and some smart classrooms in the innovative Telus Centre. Other instructors, mainly from the French department have access to smart classrooms in the Humanities Centre. French and Spanish being the two most commonly taught languages, instructors from those departments tend to have more access to smart classrooms or language labs. The Faculté St Jean is not situated on the main campus, but it offers similar technological facilities to its language instructors.

IV. Results: Analyses and Discussion

Results of the survey are presented in this section. Each question or statement, taken directly from the survey, is followed by a chart or table that indicates the number of teachers who selected each of the proposed responses. The findings for each question are briefly discussed in order to shed more light on the visual representation of the results.

A. Demographics

Gender: 12 of the participants were male and 30 were female. This compares to 29% male and 71% female language instructors. These numbers do not necessarily reflect the overall distribution of male/female instructors, but it seems that in most research dealing with language instructors, a similar pattern can be observed. It is quite relevant to ask whether female and male instructors deal with technology in different ways and whether this difference is important.

Gender	No. of Instructors
Male	12 (29%)
Female	30 (71%)

Table 1. Gender (Qn. 1)

Age: The majority of participating instructors teaching first and second language classes are relatively young. 29% of instructors range between 26-30 years and 26% of instructors range between 20-25 years. Most of these instructors are young graduate students enrolled in Masters or PhD programs. It is possible that the older instructors did not fill out the survey because they do not use technology.

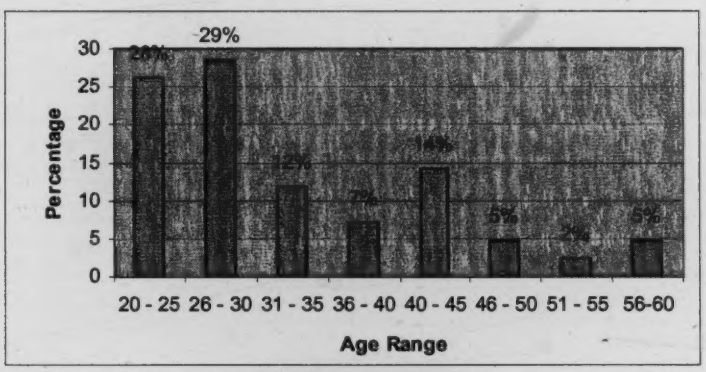


Figure 1. Age (Qn. 2)

Teaching Status: As mentioned above the majority of language instructors teaching first and second year courses are young graduate teaching assistants (52%) and sessionals (33%)

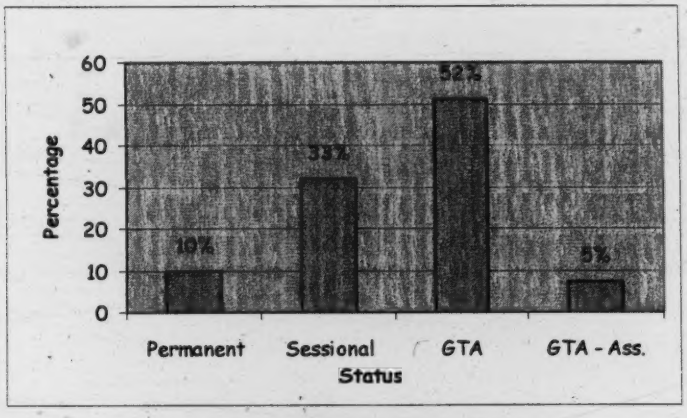


Figure 2. Teaching Status (Qn. 4)

Teaching Experience: As can be expected from the two preceding tables, most instructors have very little experience. Twenty out of the forty-two (47%) participants teaching first and second year courses have only between 1-4 years of experience and fifteen out of those twenty instructors (75%) were found to be graduate students.

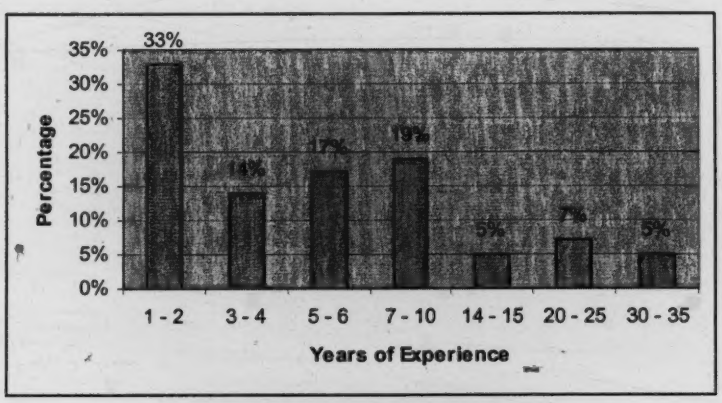


Figure 3. Teaching Experience (Qn. 6)

The three tables above show that the majority of instructors are relatively young graduate students with little teaching experience. It should be true in any major institution that older, more experienced language instructors teach higher level courses and as a result,

most first and second year language courses are taught by fresh graduate students. This is a very important fact which could have a major impact on the use of technology among language instructors. The young instructors definitely have the advantage of being from a relatively technology-savvy generation compared to older instructors but they also have to deal with their graduate courses and teach at the same time. Therefore the question is whether we can really expect them to use computer technology in their teaching? I will try to see to what degree age and teaching experience affects instructors' use of technology, if they do at all.

Languages: A total of 42 surveys were received from different language departments. The majority of instructors participating in the survey are from the French (MLCS) department followed by Spanish and German. Disparities in the rate of participation among the different language departments may be explained by the fact that some departments simply have fewer instructors than others.

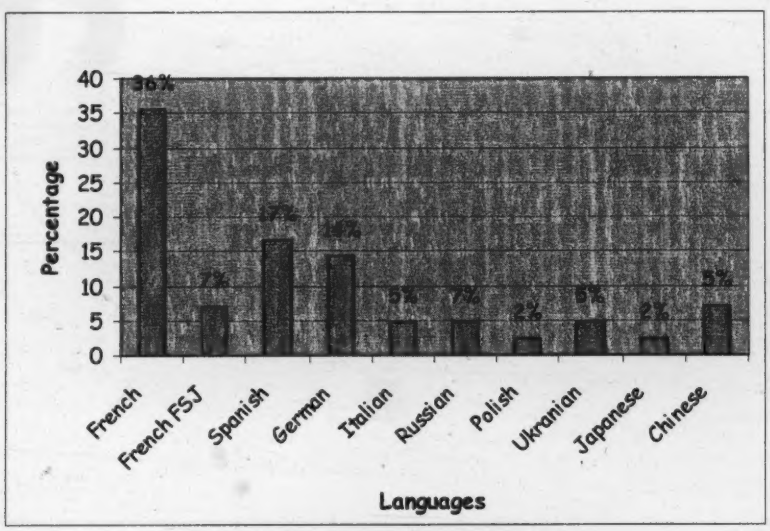


Figure 4. Languages Taught (Qn. 7)

Computer Skills: When asked to rate their own computer skills, most participants (71%) rated themselves as intermediates, high intermediates and low intermediates. On the whole, these results were quite positive since they indicate a good level of computer literacy among instructors.

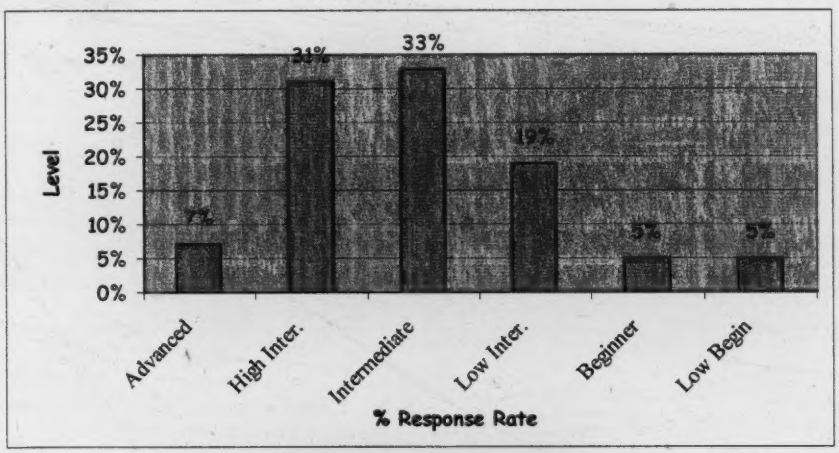


Figure 5. Computer Skills (Qn. 8)

The same results viewed by gender did not reveal much discrepancy. More female instructors rated themselves as Intermediate but it was interesting to see that more male instructors were found in the advanced category. The results for this question were also categorized according to languages taught. Overall, instructors teaching Spanish and German rated their computer skills higher than instructors from the other language departments. Moreover, the same results were sorted according to the instructors' age. Most of the instructors who rated their computer skills the highest were between 20 and 30 years old.

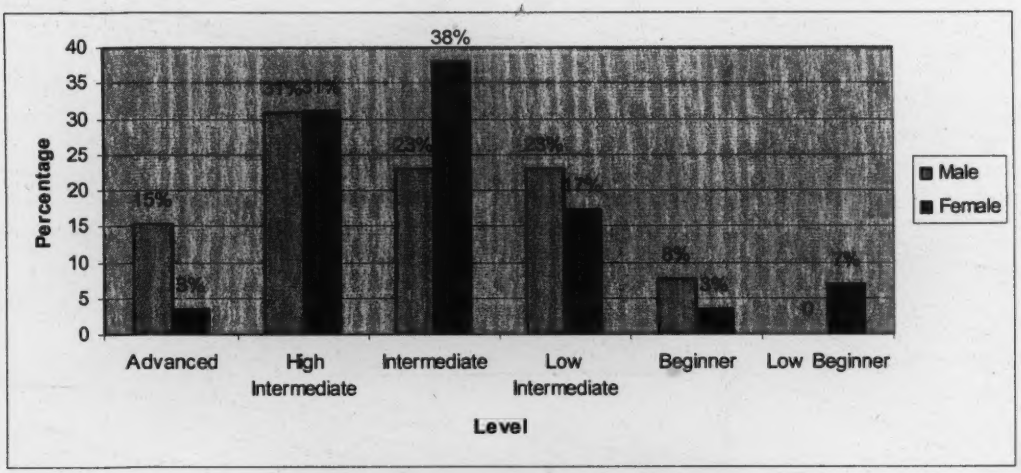


Figure 6. Computer skills by gender (Qn. 8)

B. Training

Technical Training: This question investigated the amount of formal training on the technical aspects of language learning technology received by the participants. For this question, instructors were required to indicate whether they attended seminars, took short courses, or followed other kinds of training. Also, they were required to indicate how often they received different kinds of training in the past. It was hard to analyze the results for this question since many instructors only indicated the type(s) of training they had received but not the number of trainings in total. Therefore, results were collected for the different types of training received. In total, 31 out of 42 instructors (74%) had received at least one form of technical training. As the table below indicates, most instructors (50%) received only one type of training. Also, almost all the instructors who received no previous technical training responded rather poorly to questions 11 (Knowledge to effectively use computers for language learning), 18 (Use of CALL labs), 19 (Use of Smart Classrooms), 20 (Requiring students to use computers for assignments),

and 22 (Student-targeted homepage/website). These results indicate that technical training makes a big difference in instructors' perception and use of computers.

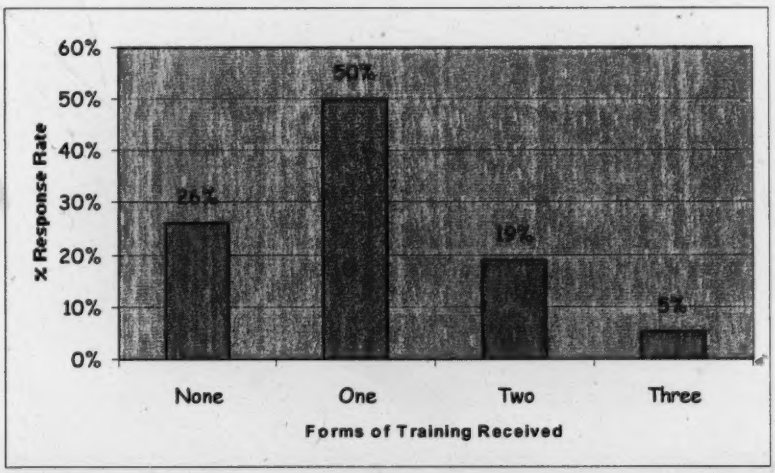


Figure 7. Formal training on technical aspects of language learning technology (Qn. 9)

Pedagogical Training: Participants were here asked to indicate whether they had received any formal training on the pedagogical aspects of language learning technology. The same problem as above was encountered; thus the different types of training followed by each instructor were recorded. 26 out of 42 instructors (62%) had received at least one form of training. Most instructors (45%) received only one form of training. A fairly high percentage (38%) of instructors who received no training at all, responded rather poorly to question 11 (Knowledge to effectively use computer for language learning).

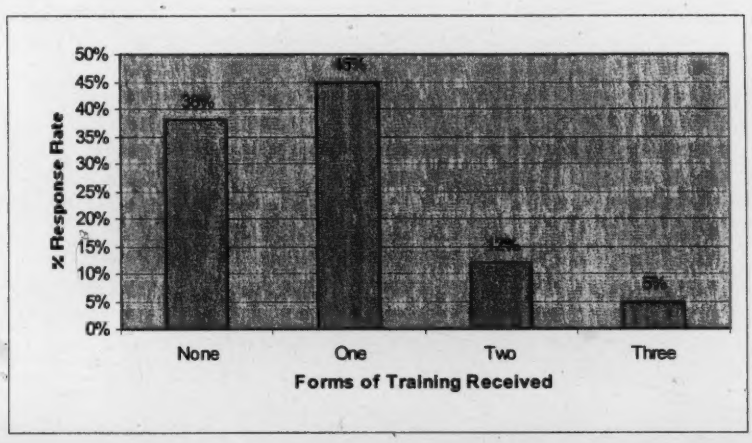


Figure 8. Formal training on pedagogical aspects of language learning technology (Qn. 10)

Effective use of computer in L2 teaching: This question asked the instructors to rate their own skills about how to use a computer for the purposes of language teaching. 52% of language instructors rated themselves as Intermediate to Advanced as compared to 71% for question 8 where instructors were asked to rate their general computer skills. The drop in instructors' confidence seems to correspond with the responses to questions 9 and 10 (Technical and Pedagogical Training). Half of the instructors are therefore aware that they lack the technical and pedagogical skills necessary to effectively use computers in language teaching.

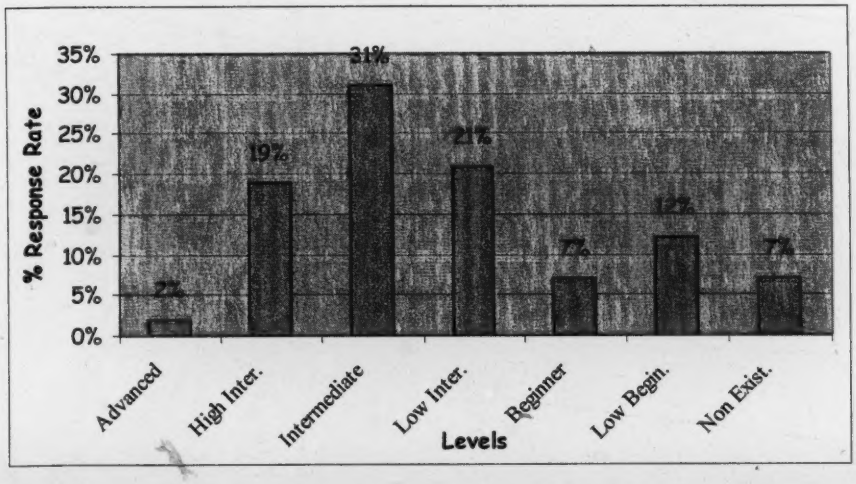


Figure 9. Knowledge about effectively using a computer for language teaching (Qn. 11)

Familiarity with CALL resources: Instructors were asked to rate their familiarity with some common CALL resources (e.g. CALICO, CALL, ALLT, etc.). Results were calculated according to a familiarity scale from A to E where A represents the lowest level of familiarity with CALL resources and E represents the highest level of familiarity. 74% of participants barely ever consult journals about CALL.

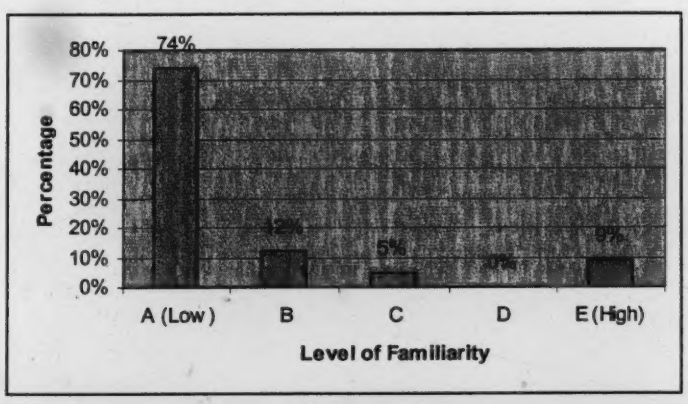


Figure 10. Familiarity with certain CALL Resources (Qn. 12)

C. Use of Computer Technology

Use of Technology: Question 13 asked whether the participants use any form of technology in their teaching. 83% answered positively showing that in general the computer is clearly one of the teacher's tools. However, 7 out of 42 instructors do not use computer technology at all in their teaching. These results were further calculated according to the instructors' gender and it was found that an average of 86% female and 77% male instructors used computer technology. The instructors' use of technology was also measured in relation to their age. The age range where most instructors used technology was 26-30. 92% of instructors in this age range used technology. No considerable parallel between years of teaching experience and use of computer technology was found here.

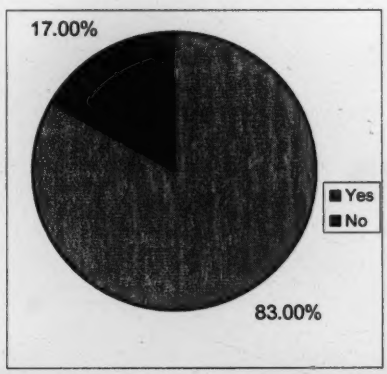


Figure 11. Use of computer technology (Qn. 13)

Learning more about technology: Question 14 asked the instructors whether they want to learn more about how to use a computer for the purposes of language learning. The responses ranged from a scale of 1 to 5 where 1 corresponds to "not at all" and 5 corresponds to "Yes, a lot". Results were highly positive here since 90% of the participants responded positively. These results definitely indicate a certain belief in the

potential of computer technology applied to L2 teaching. Moreover, these results agree with those presented in Figure 9 where about 80% of the instructors rated their computer skills for language teaching as Intermediate and lower. The instructors are thus very aware of the need for further training or professional development if they want to make effective use of technology in the classroom. One instructor here commented: "I think that computers have the potential to enhance language learning – there are a lot of … learner websites out there, for example, that do a great job of helping language acquisition/practice … but I've also seen a lot of CALL stuff that I don't like…that's why I am a little hesitant to learn more".

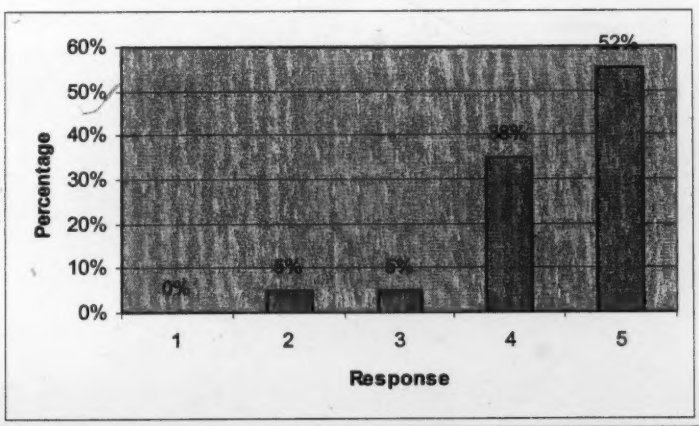


Figure 12. Desire to learn more about using computers for language teaching (Qn. 14)

Most commonly used technologies: Instructors were here given a list of 'technologies' relevant in the L2 classroom and they were asked to indicate how often they used each item, if they did at all. They also had to indicate the language component targeted by each of the technology they used. Responses varied from a scale of 1 to 4 where 1 is rarely and 4 is very frequently. The technologies which received the most number of responses were VHS, Overhead Projector, Cassette Player, and Email. Other technologies such as

Wimba, CD Players, WebCT Chat, Visualizer, Internet Resources, and CALL Labs were also mentioned by certain instructors. For each technology, the frequency of responses 1&2 were combined to indicate a low level of usage while the frequency of responses 3&4 were combined to indicate a high level of usage. These two calculated totals for each technology thus allow us to see how many people use it frequently and how many use it rarely. As the table below indicates, the most commonly used technologies were Email, Overhead Projector, and Single PC whereas some of the least commonly used technologies were TV and Multimedia Video. Three technologies (VHS, Cassette Player, and WebCT) were found to be almost equally divided when it came to instructors' frequency of use. The qualitative answers for this question proved very useful to explain the results. Email is used by a majority of instructors as a means of communication with students. It allows instructors to correspond with the whole class or with individuals. Email is also used as an administrative tool and in some cases as a written component. Instructors indicated various uses for the overhead projector. It is mainly used for grammatical instruction, but also as a visual aid to accompany reading, listening, and oral exercises. The results also revealed that the instructors mainly used the single PC to prepare teaching material. Some also used it to present grammatical or cultural points. Very few instructors used TV on a regular basis, but those who did, used it for oral comprehension and cultural value. Similarly multimedia video was not very popular among instructors, but it was still used to some extent for oral comprehension and cultural value. VHS on the other hand was the most popular form of audiovisual medium even if it was used for the same reasons as TV and multimedia video. This can be explained by the simple fact that videocassettes are more easily accessible to instructors.

Most classrooms do not have a TV which is hooked to a satellite system. Videos are still quite hard to find online and DVDs are not readily accessible at the Arts Resource Centre. It is also interesting to compare the results for cassette player and multimedia audio. Cassette players were used relatively more than multimedia audio. They were both used for oral comprehension and cultural value, but instructors also used cassette players for their students' oral exams. Once again instructors probably used cassette players because they are more convenient. Audio resources are not always easy to find online and it is easier and faster to operate a cassette player than firing up a computer, accessing the audio software, and turning on the speakers to play an audio CD. WebCT was not used by too many instructors, but those who did, mainly found it helpful for course management and delivery. Some instructors used it to post homework, for quizzes, as written components, and for oral tests. Also, four instructors used websites to access authentic resources on the Internet. The item 'Websites' was not proposed as a response in the survey, but it appeared under 'Others'. Had it been proposed, results might have been different for this question. On the whole, it seems that instructors choose to use easily accessible technologies they are comfortable with. In fact if we compare the use of 'older' technologies to the use of 'newer' technologies, we can see that most instructors use a fair mix of both.

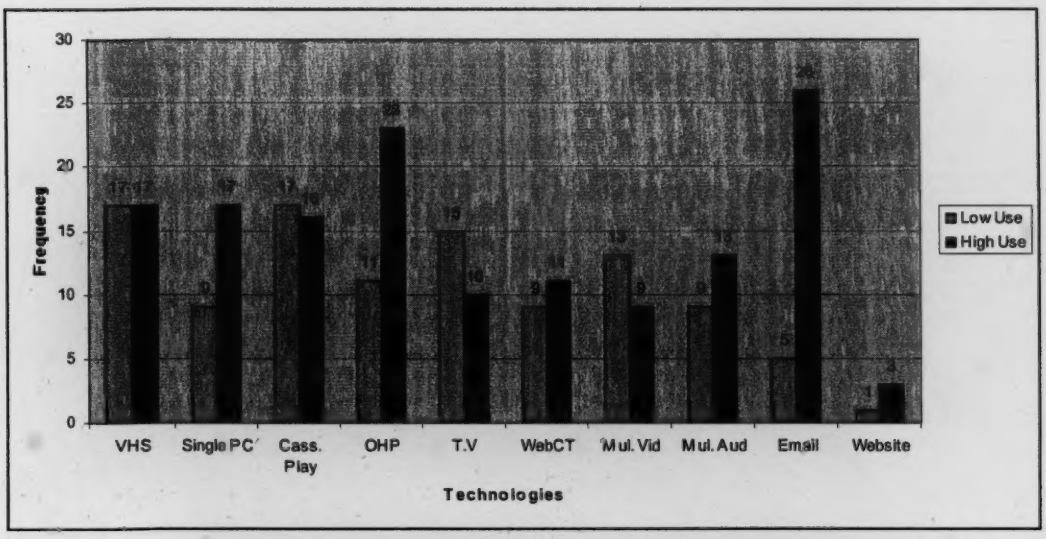
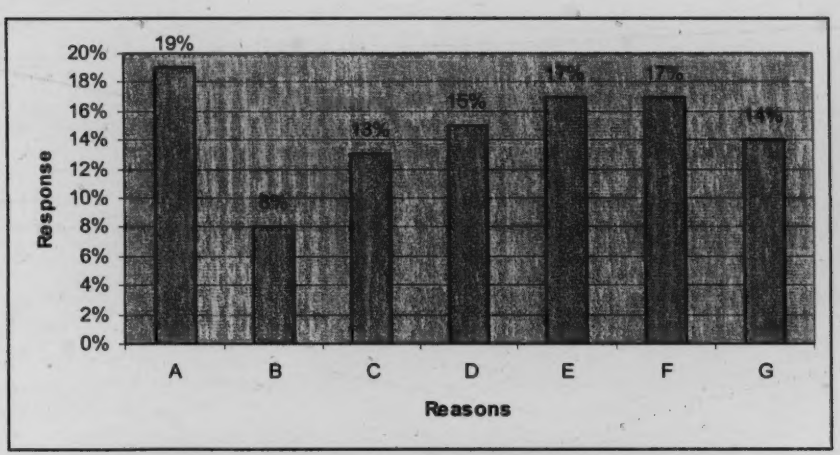


Figure 13. Most and least commonly used technologies (Qn. 15)

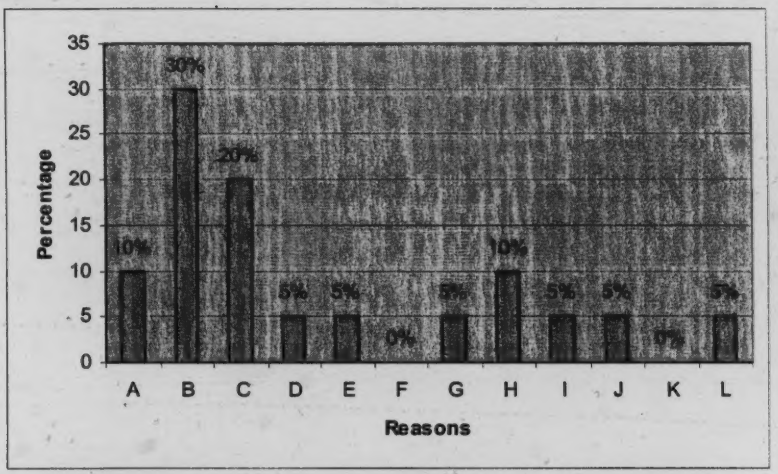
Reasons for using technology: As a continuation to question 13 (Do you use technology to teach?), instructors who responded positively were now asked to specify why they use computer technology in their teaching. The number of responses per answer was counted and the totals converted to averages. The most common responses were A, E, and F. Most instructors felt that technology motivates students and it is enjoyable. Also technology allows for autonomous learning and further practice. One instructor made a very interesting comment: "Need to show I have experience in CALL material development in order to get a tenure-track position in future". Another instructor noted: "It motivates/challenges instructors; helps with organizational skills. Instructors become more resourceful and innovative in their teaching styles". These two comments show that instructors use technology for many different reasons which are not always strictly student-oriented.



A. It motivates students and it is enjoyable
B. It eases marking
C. It helps students practice drill exercises.
D. It facilitates oral/written communication
E. It allows for autonomous learning
F. It allows for further practice
G. It allows for authentic language learning experiences.

Figure 14. Reasons for using computer technology (Qn. 16)

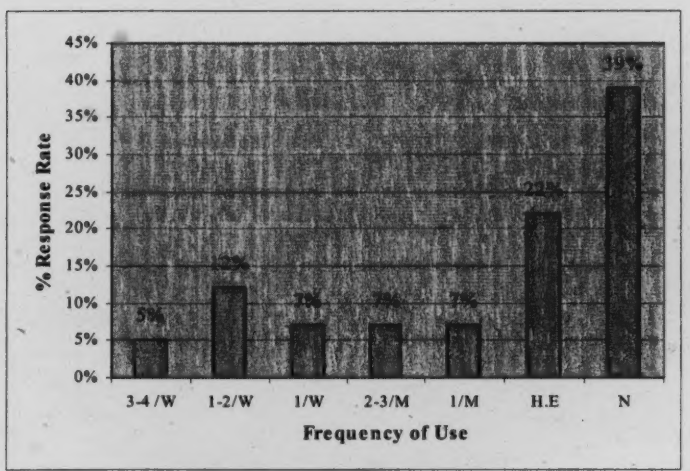
Reasons for not using technology: As another extension to question 13, instructors who responded negatively were now asked to indicate why they chose not to use technology. The most frequent response here was B (lack of computing knowledge), followed by C (Lack of resources). 10% thought it was too time-consuming and 10% also blamed the lack of IT/Technical support. These results confirm our earlier finding in the *Training* section. The seven instructors who did not use technology, had barely received any training (technical or pedagogical) towards language learning technology. Two instructors pointed out that technology does not always work and as a result, one always needs a backup plan just in case. In that respect, using technology equated to double work, which was not so appealing to them. Two instructors also pointed out a lack of resources since they did not have regular access to smart classrooms.



A. Too time consuming
B. Lack of computing knowledge
C. Lack of resources
D. Doesn't work
E. I prefer traditional methods
F. Lack of funding
G. Lack of recognition by institution
H. Lack of IT/ Technical support
I. No guarantee of positive results.
J. Not enough colleagues willing to work as a team
K. Not enough computers available
L. Other: Fear PC will fail and therefore an extra back up lesson is always needed.

Figure 15. Reasons for not using computer technology (Qn. 17)

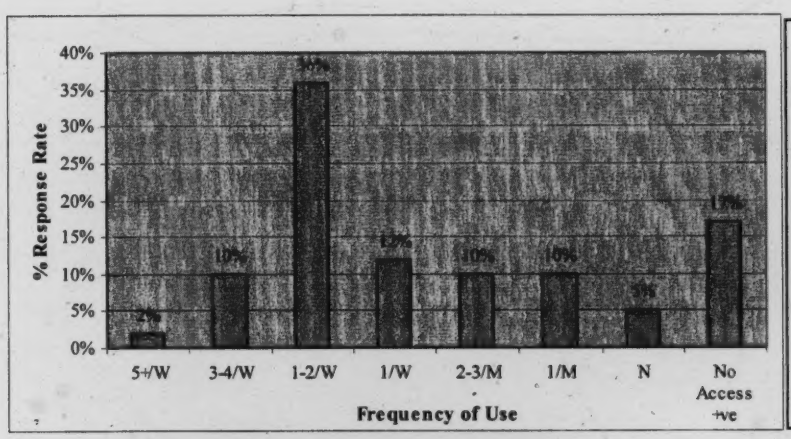
Use of CALL Labs: Instructors were asked to indicate how often they use a computer room (CALL Lab) during language lessons. As shown by the table below, 61% of the language instructors barely ever use a CALL lab during language lessons. On the other hand, only 24 % of instructors use the CALL lab at least once a week.



5+ /Week: 5 lessons or more a week
3-4 / Week: 3 to 4 lessons a week
1-2 / Week: 1 to 2 lessons a week
1 /Week: 1 lesson a week
2-3 / Month: 2 to 3 lessons a month
1/ Month: 1 lesson a month
Hardly ever
Never

Figure 16. Use of CALL labs (Qn. 18)

Use of smart classrooms: Instructors indicated on average how often they use a smart classroom during language lessons. Compared to the previous question, results were quite positive since 60% of the language instructors were found to use a smart classroom at least once a week. 17% of the instructors had no access, but would certainly use it if they could.



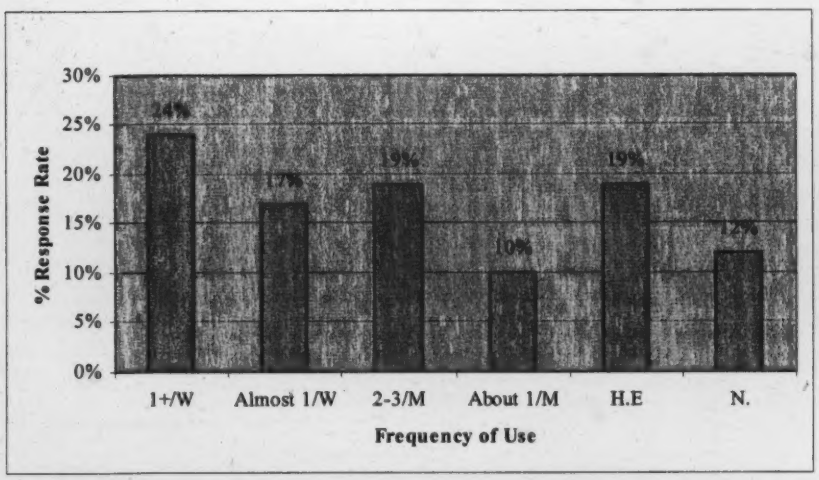
5+ /Week: 5 lessons or more a week
3-4 / Week: 3 to 4 lessons a week
1-2 / Week: 1 to 2 lessons a week
1 /Week: 1 lesson a week
2-3 / Month: 2 to 3 lessons a month
1/ Month: 1 lesson a month
Never
No Access +ve: I don't have access, but I would use if I had the opportunity.
No Access –ve: I don't have access, and I would not use it if I had the opportunity.

Figure 17. Use of smart classrooms (Qn. 19)

The key to the difference between the results for questions 18 and 19 seems to be access. Those instructors who used CALL labs 1-2 times a week had access to special CALL labs where they could be alone with their students. The main CALL lab which is accessible to most instructors is unfortunately a shared one – which they cannot book only for their students. It is also interesting to point out the fact that instructors using smart classrooms more than CALL labs obviously affects the ways in which they use technology. Those instructors who do not have access to the private CALL labs tend to see the CALL lab as a place where students go on their own for language practice. It should also be pointed out that the small group of instructors who used CALL labs 1-2 times a week was highly motivated, sharing very strong positive attitudes towards

computers in L2 teaching. All of them had their own student-targeted website/homepage (Question 22). They rated their general computer skills (Question 8) and their computer skills for L2 Instruction (Question 11) as High Intermediate to Advanced. They also required their students to do assignments on computers at least once a week (Question 20).

Students' use of computers: For this question instructors had to specify how often they require their students to use computers to do assignments in or out-of-classroom. 41% of instructors required their students to use computers at least once a week. Yet approximately 31% hardly ever required their students to use computers for homework or studying.



1+/W: At least once a week
Almost 1/W: Almost every week
2-3/M: About two to three times a month
About 1/M: About once a month
H.E: Hardly Ever
N: Never

Figure 18. Students' use of computers to do homework (Qu. 20)

Computer related activity: Instructors were asked whether they have their students do any computer related activities as part of their language education, either outside or in the classroom. This question is qualitative; therefore results were categorized such that the

most common responses were grouped together. 38% of the instructors did not have their students do any computer related activities at all. Among all the responses obtained, the most popular form of activities carried out on the computer was online searches mostly for genuine cultural information in the target language. Instructors really value the Internet as an important resource for authentic information in the target language. Audio practice was also quite popular; it helped students work on their listening and oral comprehension of the target language. Certain instructors had their students work with audio CDs which accompanied the textbook or with online audio resources. Teachers also had students practice grammatical or listening drills online.

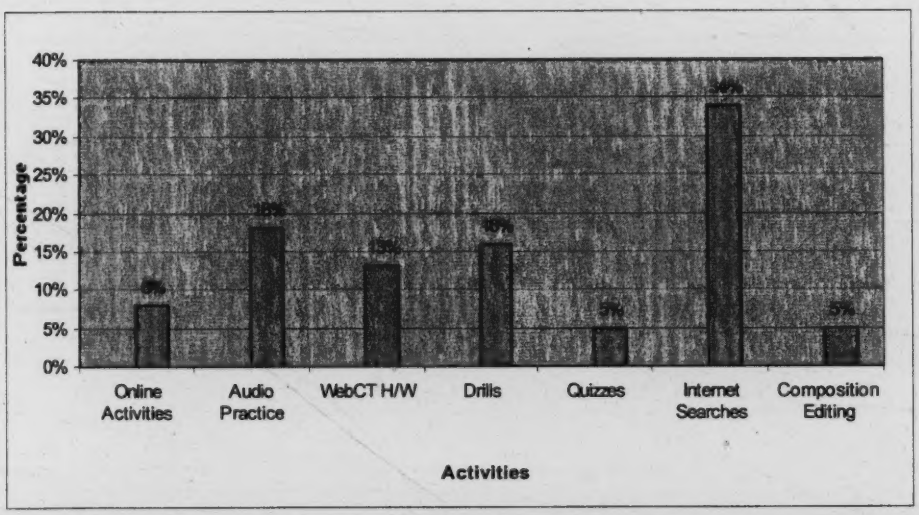
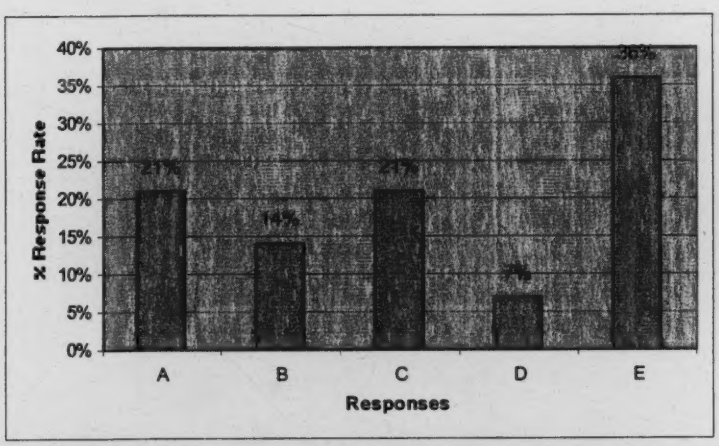


Figure 19. Most common computer related activities done by students (Qn. 21)

Homepage: Instructors were asked to indicate whether they had their own student targeted homepage/website. As the key below shows, they had five different responses to choose from. The majority of instructors already had a student targeted homepage or intended to get one soon. The unexpected results for this question was the high

percentage of instructors (36%) who chose response E as an answer, indicating that they had no plans of making a homepage at the moment. Those who chose answers A and B had an average of 7.2 years of experience while those who chose answer E had an average of 6.3 years of experience, a very similar number of years which shows that teaching experience does not necessarily have an effect on the integration of technology into teaching in terms of providing students with webpages. However, it was also found that in general, the instructors who chose E also rated their general computer skills as Low Beginner to Intermediate for question 8. As well, for question 11 (how would you rate your own computer skills for purposes of L2 teaching?), they rated their knowledge as non-existent to intermediate. In comparison, those who chose response A for this question rated their knowledge as intermediate, high intermediate, and advanced. Moreover, those who chose response E did not require their students to do assignments on computers as much as those who chose response A and B (question 20). It should also be pointed out that all 7 instructors from one department had their own student targeted website (WebCT).



A: Yes, I made my own
B: Yes, someone made it for me
C: Not yet, but I plan to make my own
D: Not yet, but I plan to get someone to make one for me
E: No, and I have no plans to make one at the moment

Figure 20. Student-targeted homepage/website (Qn. 22)

D. Attitudes

Teacher's attitude towards computers: Instructors were here asked to assess their attitude towards the use of computers for the purpose of language teaching and learning. Responses ranged from very negative (1) to very positive (5). As Figure 21 demonstrates, attitudes towards the use of computers are quite positive. These results agree with the results for question 14 where 90% of the instructors indicated that they want to learn more about how to use computers for the purposes of language learning.

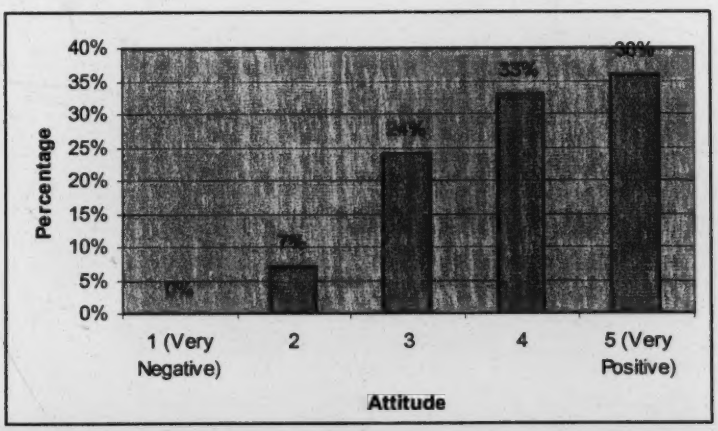


Figure 21. Instructors' attitude towards the use of computers (Qn. 23)

Teachers' perception of students' attitude towards technology: This question required the instructors to describe their students' attitude towards computer technology in language instruction. Once again, responses varied from very negative (1) to very positive (5). Results here are quite surprising compared to the results of the previous question. While 50% of instructors perceived their students' attitudes towards computers as being positive, 43% seemed unsure. There is quite a considerable difference between teachers' own attitudes and their perception of students' attitudes towards technology in language instruction. This means that while instructors firmly believe that computer

technology is beneficial to their teaching, they are not so sure whether students enjoy or appreciate the learning they do via computer technology. These results are especially contradictory to question 16 (why do you use computer technology) where the general consensus among instructors was that a computer used in the language classroom 'motivates students and is enjoyable'. Further calculations showed that the instructors who chose response 3 (neutral) for this question had an average response of 3.5 for question 23 (their own attitude towards computers in L2) while those who chose response 5 (very positive) had an average response of 4.8 for question 23. This indicates that the way instructors perceived their students' attitude towards computers was closely related to their own attitude towards computers. Also most of the instructors who chose response E for this question rated their knowledge about how to use a computer effectively for L2 learning (Question 11) as advanced or high intermediate. The results for this question were also matched with those obtained for question 20 (How often do you require your students to use computers for assignments?). Instructors who rated their students' attitude towards computers positively here also required them to use computers on a regular basis. This indirectly shows that confident teachers, who consistently incorporate technology in their classes, are convinced that their students appreciate and benefit from the use of technology.

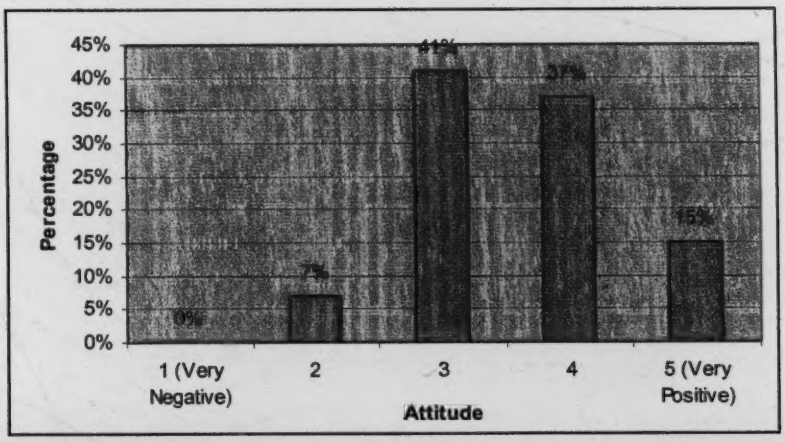


Figure 22. Instructors' percepton of students' attitude towards computers (Qn. 24)

Future of computers: This question asked instructors whether they thought computers would be used 'significantly more' in language learning and teaching within the next ten years. Responses for this question were measured on a scale of 1 to 5 where 1 stands for (no, definitely not) and 5 stands for (yes, definitely). Results are quite positive here as well. 86% of language instructors agree that computers will be used significantly more in language learning. No matter how instructors rated their attitudes or the attitudes of their students towards computers in L2 learning, they seemed to firmly believe that computers will be more and more present in the classroom. The results for this question were also analyzed in relation to teaching experience and it was interesting to find that instructors who chose response 5 had an average teaching experience of 5.7 years; those who chose response 4 had an average of 6.8 years; those who chose response 3 had an average of 17.2 years (they were all aged between 36 and 50). These findings indeed seem to indicate that the older generation of instructors is more skeptical about the future of computers in L2 classrooms.

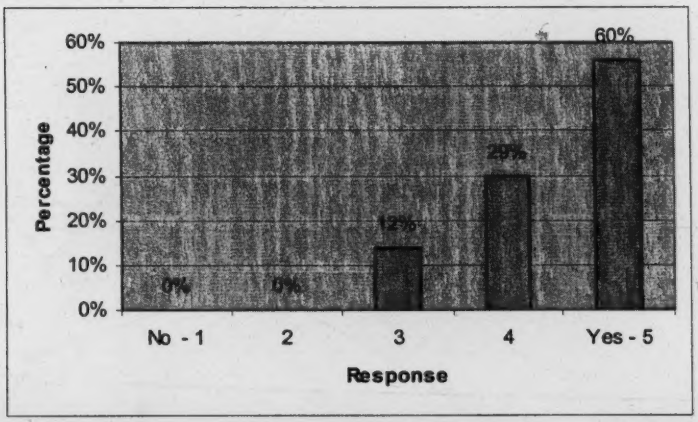
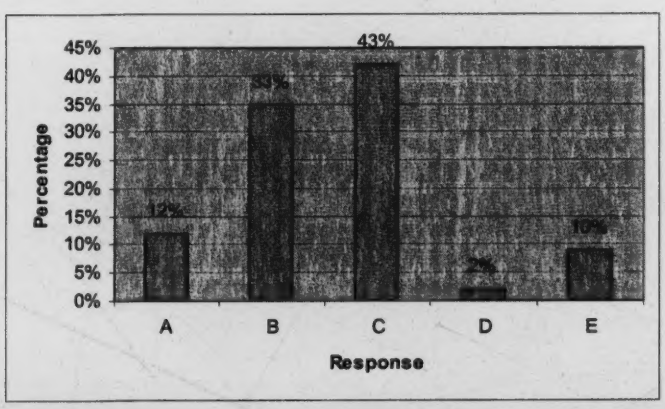


Figure 23. Future of computers in language learning and teaching (Qn. 25)

Integration and utilization of computers: Instructors were here asked whether according to them, there had been a successful integration and utilization of computers into the language teaching curriculum in their institution. 45% of the instructors seemed to be satisfied with the integration and utilization of computers. Response A was chosen by five highly motivated instructors who were found to make extensive use of the available computer facilities. Response B (Yes, probably) had a relatively high response rate, but it still carries some doubt. C was the most popular response among instructors since they realize that there is a certain potential which still needs to be exploited in the near future.



A: Yes, definitely
B: Yes, probably
C: No, not yet, but I think it will be successful in the future
D: No, and it probably will not be successful in the future
E: Not sure

Figure 24. Perception of computer integration and utilization (Qn. 26)

E. Evaluation

Best computer practice: This final question is qualitative and it was designed to find out what instructors thought was the best practice of Computer Technology in Language Learning/Instruction, that is: what works, where, and when? Since the answers to this question are qualitative, they were categorized such that the most common responses were grouped together. As the table below shows, most instructors agreed that computers were especially useful in L2 learning for its ability to offer rich authentic multimedia experience of the target language. In other words, students are able to see and hear the target language being spoken in an authentic context. The instructors used a variety of multimedia material – either online or on CD-ROMs. For instance, they mentioned using audio music, interactive online games, online videos, interactive CDs accompanying the textbook. One instructor played DVDs of well-known movies in the target language. Since students knew the storyline, they could pay more attention to grammatical constructions. Also the DVD offered the instructor the advantage of jumping from scene to scene to focus on different aspects of language without having to worry about students following the story. All these resources are used for listening comprehension, pronunciation, grammar practice, and cultural information. Many instructors also believe that computers are excellent for grammatical practice. Exercises available on the Internet, on WebCT, or on CD-ROMs allow students to practice on their own, any time and anywhere. Some instructors admitted that such self-practice opportunities saved them and their students a lot of time. Also, having access to the Internet is seen as a benefit in the L2 context since it offers a lot of information in the target language. Once again, many instructors underlined the authentic and cultural value of information that can easily be

accessed online for instance on popular French websites. Quite a few instructors also indicated using computers for course preparation and lesson delivery on PowerPoint for instance. Others used computers to type up exams or store class marks. Few instructors were found to use communication tools such as Wimba, Bulletin Boards or Chat rooms. WebCT on the other hand was seen as quite popular and resourceful since it was used to give quizzes online, for pronunciation, and listening comprehension.

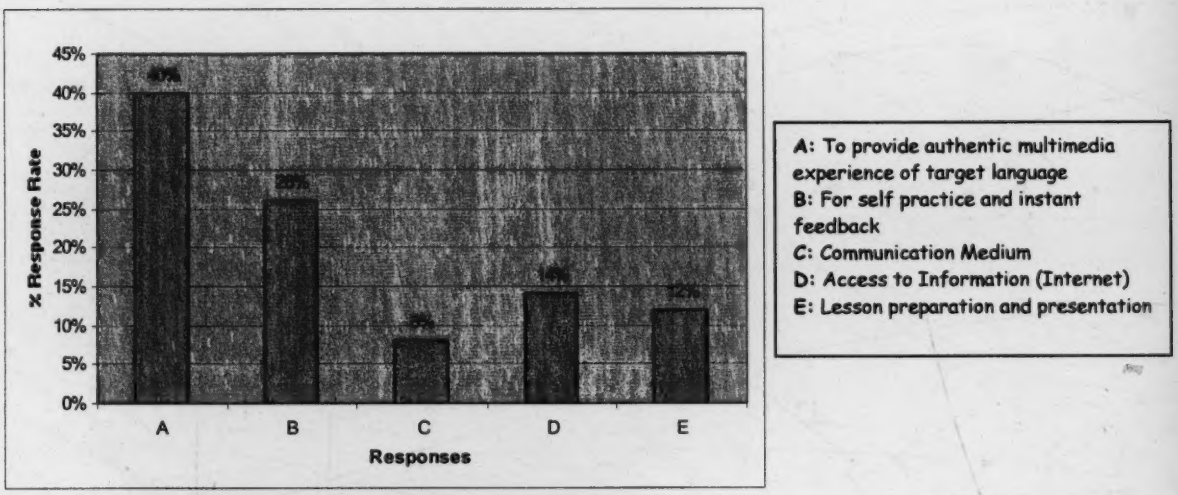


Figure 25. Best practice of computers (Qn. 27)

F. Discussion

Results obtained from this study substantiate many factors already identified in prior research since the participants followed certain similar patterns as instructors in previous studies. They were generally quite keen to use computers, especially as a means of presenting crucial information in an authentic context. Also, the major obstacles in their path to a successful use of technology were lack of training and to some extent lack of access to equipment.

This study saw no major relationship between the instructors' use of technology and gender, age, or even teaching experience. Even if 86% (25 out of 29) female compared to 77% (10 out of 13) male instructors were found to use technology, because of the limited number of participants and the male to female ratio, it cannot be claimed that gender affected the decision to use or not to use technology. Also, other questions pertaining to the use of technology did not reveal any noteworthy gender-dependant patterns. The majority of instructors in this study were relatively young graduate students who had few years of experience. They were found to be reasonably computer-literate in general, but when it came to using computers for language learning, instructors rated their skills more modestly. Lack of proper training was a direct cause of the drop in their self-confidence. This study found that training had a major impact on the use of technology by instructors. As Reed, Anderson, Ervin, and Oughton (1995) indicated, even one course was found to make a significant difference in instructors' perception of technology. Even minimal training thus increased instructors' level of confidence when it came to the use of computers for language learning. And instructors' confidence level was in turn linked to their attitudes, their knowledge, and their use of computer technology. Similarly, many previous studies found a positive correlation between teachers' computer knowledge and positive attitudes towards computers (Bradford, 1984; Burke, 1986; Clerc, 1985; Kellenberger, 1994; Taylor, 1986). The results of this study also disagreed with previous research in some ways. It was interesting to see that institutional pressure to use technology was not mentioned at all. Only one instructor admitted using computers for career advancement reasons. Also, time, previously identified as a main hindrance (Jones, 2001; Lam, 2000; Levy, 1997a), did not appear to

be an issue here even if most of the instructors were young graduate students who had to simultaneously juggle both their own courses and their teaching.

This study supports previous findings since the instructors mainly used computer technology in the classroom to help their students learn the target language better by varying the mode of presentation (Schneiderman, Borkowski, Alavi, and Norman, 1998; Lam, 2000). For instance, exploring websites together in class presented a change; it motivated students and it was an enjoyable experience. One instructor commented: "It's good to have some online exercises when there is a long class, this prevents boredom and makes students more alert and they pay more attention". Another instructor said: "…I use computer in class mostly for audio (music) what students find very relaxing". Computer technology was also seen as crucial for promoting autonomous learning, offering further practice independent of time and location, and for accessing authentic, culturally rich language experiences in a matter of seconds. In that respect, the Internet was seen as an indispensable resource in language learning, inside and outside the classroom. These results support Mohammed's (1994) claims that technology has been used for bringing inaccessible experiences into the classroom. A majority of instructors had their students go online to explore a foreign world in diverse ways. In that respect, the Internet is seen as a rich network of information which appears in an array of forms and flavors. In addition, it offers more and more readily accessible interactive activities, games, exercises, audio, and video materials which can really help foreign language students.

Instructors in this study chose the technology they wanted to use depending on how accessible and practical it was. Also the technological environment itself determined whether certain technologies were used more than others. Most instructors used Email to

communicate with students either in groups or individually. The overhead projector was found to be the most commonly used 'traditional' technology; instructors mainly used it to teach grammar, but it was also an important visual aid in oral exercises. It could be argued that the Overhead Projector was so popular simply because it is readily available in every language classroom. In that respect, an instructor commented: "If I had a guarantee of regular computer availability in class, I would invest the time and resources necessary to move from 'overhead' teaching to power-point". Instructors thus chose to use available technologies they were comfortable with within a particular technological environment. Those who did not have as much access to smart classrooms or private CALL labs were obviously less likely to be making advanced use of computers.

However, the major obstacles to a successful integration of computer technology in the teaching curriculum were the lack of training in the use of computers for L2 learning and accessibility to equipment. The same obstacles have been identified in several previous studies (Abdal-Haqq, 1995; Lam, 2000; Langone et al., 1998; Levy, 1997; Smerdon et al., 2000). In general, instructors were pretty motivated to use technology, but unfortunately did not seem to know too much about how to integrate it in their teaching in a more meaningful way. As a result, most instructors kept the computer applications in class pretty simple (for e.g. projecting websites in class or playing audio music). One instructor summarized the main lacunae in one sentence: "I wish I knew how to use technology actively in class (but we would need more computers)". Only few instructors had regular access to private CALL labs where they could carry out a whole class. An instructor commented: "In the past I had access to a computer lab during 1/4 of sessions and I think that at least 50% of sessions in such an environment would have

allowed these technologies to be used more consistently". Another instructor added: "Using technology on a regular basis works much better than using it very rarely". These results concur with Leh's (1995) since it seemed that some instructors came to a stop in the use of technology against their will; they could not invest the necessary time and efforts to learn how to use certain technologies more consistently since they had no guarantee of having access to the necessary equipment on a regular basis.

Rating the success of the integration and utilization of computer technology in the language teaching curriculum in their institution, instructors were somewhat skeptical about the present, but optimistic about the future. The majority of instructors in this study were convinced that computers will be more and more present in L2 learning over the next ten years. Their own attitudes towards computers in L2 acquisition were very positive and they were eager to learn more about how to use technology effectively in the language classroom. In that respect, instructors were quite conscious of the potential benefits of using computers in L2 learning and were ready to expand their knowledge and skills. Lawrence (2000) notes that teachers' belief in the potential of technology is a strong starting point since their initial attitude determines to a large extent whether or not they will adopt technology.

One language department stood out in the survey since it demonstrated exemplary integration and use of technology. The group was found to be highly motivated, sharing very strong positive attitudes towards computers in L2 learning. All the instructors had their own student-targeted WebCT and made full use of the resources available. They rated their general computer skills and their skills for L2 Instruction as High Intermediate to Advanced. They also regularly required their students to use computers outside of the

classroom. It should be underlined that there was no difference between these instructors' background and the background of the other instructors. They were for the most part equally as young and as inexperienced as the rest of the instructors. What made a difference however, was the leadership in their team. The coordinators of that language department had worked hard to integrate computer technology homogeneously in all of the courses. Self-confidence and innovativeness, two key factors identified by Marcinkiewicz (1993) appear to have a large contribution in their successful use of technology. WebCT was used in similar ways by every instructor for online quizzes, homework, grammar practice, listening comprehension, and pronunciation. These instructors also had access to a special language lab where they could have each student sitting at a station working with the online resources. Thus these instructors had a set technological component in their teaching curriculum from the beginning. Probably another reason for the success of technology integration here is the fact that the CALL component was not an add-on but actually part of a structured learning environment (Ruschoff & Ritler, 2001; Bax, 2000). After the instructors had learned how to use the technology, they were free to personalize it to the liking or needs of their respective classes. As mentioned earlier, this example emphasizes the importance of leadership and careful implementation of technology in the teaching curriculum. The instructors definitely fit in the category of pragmatists (Gillespie and Barr, 2002); they were no doubt successful in their use of technology and their success boosted their confidence and motivated them even more to further their use of technology. One of the instructors commented that technology "... motivates/challenges instructors; helps with organizational skills. Instructors become more resourceful and innovative in their

teaching styles". These comments support Quinn's (1990) findings that planning a good CALL lesson has valuable effects on teachers since it requires good organization and communication skills.

Moreover, another subtle, but equally important observation was the sense of collaboration that existed in this group. Since the instructors used more or less the same technology, they could combine efforts, share experiences, and help each other. McKenzie (2001) emphasized the benefits of having such informal collaborative groups, teams, and structures in the midst of any education system. Stallings and Koellner-Clark (2003) also discussed how graduate students paired up together and combined efforts to use technological tools like WebCT. Not only did they make productive use of their time, but they also got the advantage of having on-the-job professional development. Material resources are a must, but the power of human resources has long gone underemphasized in previous research. Fullan (2001) summarizes the importance of relationships among teachers to introduce changes in learning and teaching:

> New meanings, new behaviors, new skills, and new beliefs depend significantly on whether teachers are working as isolated individuals or are exchanging ideas, support, and positive feelings about their work. The quality of working relationships among teachers is strongly related to implementation (p. 84).

V. Conclusion

A. Rationale of Study

It is important at this point, to restate why this study was undertaken. The *raison d'être* of this study was to examine the dynamics surrounding L2 instructors' current uses of technology at a major institution. It attempted to see how factors like years of experience teaching, previous training, and attitudes affected the way teachers used technology. This study also attempted to find out which technologies teachers use the most and at the same time examine the context surrounding technology use, that is, the reasons, motivations, and factors affecting their use such as accessibility of equipment. On the whole, this study set out to see how well L2 teachers are adapting to today's technological age, which practices have persisted through time and which have emerged over time.

B. Summary of Findings

The results of this study are very positive and optimistic on the whole. Most of the participants in this survey seem to be convinced of the benefits of using technology. The instructors have access to technological facilities, but they feel no pressure to use them. Attitudes are very positive and instructors are clearly convinced that computers will only become more and more present in the L2 classroom. The results seem to agree with Jones's (2001) comments in the sense that students in this technological age expect to find computers at their disposal and teachers being very aware that the field of CALL is more and more recognized, feel the need to learn more about it. What is really missing is the training that goes along with the available technology. A majority of instructors are currently using technology in ways they deem good and useful, but they are also very

conscious of the fact that they are merely touching the tip of the iceberg and consequently they are motivated to learn more. They yet have to explore the further more solid possibilities that computer technology can offer. For instance, many instructors demonstrated an interest in learning how to use educational tools such as WebCT and Wimba in their classroom. In other words, many instructors would like to see consistent technology integration in their teaching instead of having it as an occasional add-on.

C. Implications

Probably the most important finding of this research is the importance of collaborative efforts from within the language departments as emphasized by several studies in the past (McKenzie, 2001; Stalling and Koellner-Clark, 2003; Fullan, 2001). It is no secret that Arts Faculties in North American Universities are constantly facing budget cuts. Most major institutions already have adequate technological infrastructures, but do not have enough money in order to provide teaching staff with the necessary technological training to use these facilities. As a result, the material resources are often poorly used or not used at all. As the example in the previous chapter showed, these problems can be solved with the help of collaborative efforts from within teaching departments. In our case, a handful of young dedicated language coordinators merged their efforts to carefully implement a technological component in their language teaching curriculum. These efforts were found to be contagious since all the instructors in that language department took the use of computer technology in language learning to the next level.

Similarly, studies have revealed that teachers are much more expected to be successful in the integration and maintenance of a new strategy if the first training

sessions are followed up by peer coaching and collaborative work with colleagues (Baker, 1983; Showers, 1982, 1984). Furthermore, the instructors' success was found to have positive effects on other areas such as favorable attitudes, self confidence, and job satisfaction. It sufficed to introduce instructors to certain possibilities technology could offer, provide them with the necessary tools to function, and they were free to operate on their own, tailoring the use of technology to the needs of their students. Not only did they make good use of the technologies available to them, but they also created a collaboration network with their colleagues.

Hence, this case scenario underlines the importance of dedication, determination, and good leadership. This example also shows that the latent potential is there; it is a matter of exploiting it. Most institutions have a rich network of human resources which can easily pool together to properly manage and use technological facilities. More so, there is a need for sharing not only within, but also across different language departments to create an even richer network of common knowledge and expertise which can only benefit everyone. Sadly, what is often missing is the initiative, especially from language teaching professionals (Burston, 1996). Of course that would require special efforts from everyone and more from those who are ready to lead. The next technological revolution has to come from within. On that note, Fullan's explanation of the positive roles of pressure and support applies perfectly here: "Pressure without support leads to resistance and alienation; support without pressure leads to drift or waste of resources" (2001, pp. 91-92). Therefore, teachers' collaborative efforts and initiatives within and across disciplines should be encouraged and rewarded.

D. Limitations

The most important limitation of this study is probably the lack of representativeness of the sample. Only 42 out of 90 instructors accepted to fill in the survey and approximately 70% of the participants, who did participate, were from MLCS (Modern Languages and Cultural Studies). The participation rate from EAS (East Asian Studies) and the Faculté St Jean was rather low. Non reporting in this project might have affected end results to some extent. The low response from the Faculté St Jean may have been due to the fact that the survey was in English. Since most of the instructors are francophones, they might not have felt comfortable responding to the survey. Moreover, the survey was distributed to instructors who had taught for the full academic year (Fall 2003 and Winter 2004). Some instructors who had taught in Fall 2003 might not have taught the second term and as a result, never received the survey.

Results obtained from the survey therefore cannot be generalized to other settings. A more equally distributed sample group would have been better for the purposes of this study. It would have offered a more accurate picture of how instructors across language departments understand and incorporate computer technology in their teaching. Furthermore, it would have allowed us to see to what extent different educational structures within language departments affect instructors' use of computer technology. Also most of the data for this study was collected through surveys. As is the case for most instruments that depend on self-reporting, there is no guarantee for the preciseness of the information collected.

Another limitation of this study was perhaps its quantitative nature. An equal mix of quantitative and qualitative questions in the survey would have helped to shed more light on instructors' responses. For instance, instructors could have described their

computer skills (Question 8 and 11) instead of rating them according to undefined boundaries such as "Advanced, High Intermediate, or Intermediate". When asked about their past training, instructors could have been asked whether or not they found the courses useful. They could also have been asked what kind of training they would rather have and why. For Question 15 (Which of the following "technologies" do you use while teaching a language in a classroom?), Websites should have been offered as a reponse item even if it would overlap with other reponses such as multimedia audio, multimedia video, and WebCT which are often accessed from websites. A response that should have been added in the choices offered for Question 16 (Why do you use computer technology?) is institutional pressure. The responses offered are all targeted towards students' learning such that teachers' own personal reasons or motivations to make use of computer technology are underemphasized. Question 22 (Do you have your own student targeted homepage/website?) should have another section attached to it (Do you know how to make a website?) since the second response "Yes, someone made it for me" does not differentiate between someone who is able to make a website, but does not do it, perhaps due to a lack of time or other reasons, and someone who knows how to design a webpage. For Question 26 (How do you rate the integration and utilization of computer technology in the language teaching curriculum at your institutions?), it would have been interesting to ask instructors how they think a successful integration and utilization of computers into the teaching curriculum in their institution could be achieved. For several questions, instructors could have been asked to justify their responses. For instance, when they indicated that they want to learn more about how to use computers for the purposes of language, they could also have been asked to substantiate their response. Similarly,

they could have been asked to justify their use or lack of use of CALL labs. It would also have been interesting to see why they thought computers would or would not be used more significantly in language learning and teaching within the next ten years.

E. Future Research

Language instructors were the main focus of this study since it intended to understand their perspective of the use of computer technology in L2 learning. For future studies, it would be worthwhile to carry out a survey among students to see what they thought of the use of computer technology in language instruction, and then match their responses to their instructors'. Future studies may also find it useful to examine the point of view of other structures surrounding language departments such as the administration (Heads of departments, Deans, Language Coordinators, etc.) and the technological resource groups (Language Resource Centre Staff, CALL Labs Staff, Classroom Support Staff, etc.) to get a more accurate picture. Moreover, it is not enough to measure teachers' use of technology. The next step is to examine whether or not the use is meaningful. Future studies should attempt to appraise efficient uses of technology which have a significant impact on learning.

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Appendix 1: Survey

SURVEY ON THE USE OF COMPUTER TECHNOLOGY IN LANGUAGE INSTRUCTION

By accepting to contribute to this survey, you indicate that you have read and understand the information outlined in the *Invitation* and *Consent* and that you agree to participate in this study.

Place an (x) in front of the best choice(s) or circle the best option(s) where applicable.

BACKGROUND INFORMATION

1. Gender: Male ( ) Female ( )

2. Age Group: 20-25 26-30 31-35 36-40
40-45 46-50 51-55 56-60
60-over

3. Education / Training: _____

4. Teaching Status:

( ) Permanent
( ) Sessional
( ) Graduate Student - Principal Instructor
( ) Graduate Student – Teaching Assistant
( ) Other _____

6. Years of experience teaching languages: _____

7. Language you are currently teaching: _____

Class Level: 100 / 200 Language Level: Beginner / Intermediate /Advanced

(If you are teaching more than one language, please use a separate questionnaire for each language)

8. How would you rate your own computer skills?

( ) Advanced
( ) High Intermediate
( ) Intermediate
( ) Low Intermediate
( ) Beginner
( ) Low Beginner

TRAINING

9. Have you received any formal training on the technical aspects of language learning technology? If so, please indicate the number of such courses in the brackets.

( ) seminars
( ) short courses
( ) university courses
( ) other (please describe) _____

10. Have you received any formal training on the pedagogical aspects of language learning technology? If so, please indicate the number of such courses in the brackets.

( ) seminars
( ) short courses
( ) university courses
( ) other (please describe) _____

11. How would you rate your own knowledge about how to effectively use a computer for the purposes of language teaching?

( ) Advanced
( ) High Intermediate
( ) Intermediate
( ) Low Intermediate
( ) Beginner
( ) Low Beginner
( ) Non Existent
( ) Not Sure

12. Are you familiar with any of these CALL resources? If yes, at what rate do you keep up with the latest published literature?
0 = Never / 1 = rarely / 2 = sometimes / 3 = frequently / 4 = very frequently

( ) CALICO Journal
( ) CALL Journal
( ) ALLT Journal
( ) Other _____

USE OF COMPUTER TECHNOLOGY

13. Do you use any form of computer technology in your teaching? (Yes) (No)

14. Do you want to learn more about how to use computers for the purposes of language learning?

(Not at all) 1 – 2 – 3 – 4 – 5 (Yes, a lot)

15. Which of the following 'technologies' do you use while teaching a language in a classroom? Please indicate how often you use the item (1= Rarely < – > 4 = Very frequently) (You may select more than one):

Example: VHS Oral Comprehension 2

Technology	Language Component Targeted	Frequency of Use (1 - 4)
VHS		
Single Computer used by you		
Cassette Player		
Overhead Projector		
Television		
WebCt		
Multimedia Video		
Multimedia Audio		
Email		
Other:		
Other:		

16. If you replied yes to question 13, please indicate why? (You may select more than one option)

( ) It motivates students and it is enjoyable
( ) It eases marking
( ) It helps student practice drill exercises.
( ) It facilitates oral / written communication.
( ) It allows for autonomous learning (self-access or self-study)
( ) It allows for further practice
( ) It allows for more authentic language learning experiences
( ) Other _____

17. If you answered no to question 13, please indicate why?

( ) Too Time consuming
( ) Lack of computing knowledge
( ) Lack of resources (labs/classroom…)
( ) Doesn't work
( ) I prefer traditional methods
( ) Lack of funding
( ) Lack of recognition by my institution
( ) Lack of technical/IT support
( ) No guarantee of positive results
( ) Not enough colleagues willing to work as a team
( ) Not enough computers available for students
( ) Other _____

18. On average how often do you use a computer room (CALL lab etc.) during language lessons?

( ) 5 lessons or more a week
( ) 3 to 4 lessons a week
( ) 1 to 2 lessons a week
( ) 1 lesson a week
( ) 2 to 3 lessons a month
( ) 1 lesson a month
( ) hardly ever
( ) never

19. On average how often do you use a smart classroom during language lessons?

( ) 5 lessons or more a week
( ) 3 to 4 lessons a week
( ) 1 to 2 lessons a week
( ) 1 lesson a week
( ) 2 to 3 lessons a month
( ) 1 lesson a month
( ) hardly ever
( ) never
( ) I don't have access to a smart classroom, but I would use it if I had the opportunity
( ) I don't have access to a smart classroom, and I would not use it if I had the opportunity

20. On average how often do you require your students to use computers to do homework in or out-of-classroom studying?

( ) At least once a week
( ) Almost every week
( ) About two to three time a month
( ) About once a month
( ) Hardly ever
( ) Never

21. Do you have your students do any computer related activities as part of their language education, either outside or in the classroom?

Please indicate what kind of activities:

_____
_____
_____

22. Do you have your own student targeted homepage / website?

( ) Yes, I made my own
( ) Yes, someone made it for me
( ) Not yet, but I plan to make my own
( ) Not yet, but I plan to get someone to make one for me
( ) No, and I have no plans to make one at the moment.

ATTITUDE

23. How would you assess your attitude towards the use of computers for the purpose of language teaching & learning?

(Very Negative) 1 – 2 – 3 – 4 – 5 (Very Positive)

24. How would you describe your students' attitude towards computer technology in language instruction?

(Very Negative) 1 – 2 – 3 – 4 – 5 (Very Positive)

25. Do you think that computers will be used 'significantly more' in language learning & teaching within the next ten years?

(No, definitely not) 1 – 2 – 3 – 4 – 5 (Yes, definitely)

26. Do you think that there has been a successful integration and utilization of computers into the language teaching curriculum in your institution?

( ) Yes, definitely
( ) Yes, probably
( ) No, not yet, but I think it will be successful in the future
( ) No, and it probably will not be successful in the future
( ) Not sure

EVALUATION

27. In your experience, what is the best practice of Computer Technology in Language Learning/Instruction? What works – where and when?

_____

_____

_____

_____

_____

_____

* * * * * * *

Thank you so much for taking your time to fill in this survey. Your participation in this research is much appreciated.

Please send your responses (in a sealed envelope) to me within 10 days, by **Friday, April 3rd 2004.**

THANK YOU SO MUCH FOR YOUR PARTICIPATION

Appendix 2: Invitation and Consent Letter

Invitation to Participate in Research

From: Ravi Ramdhony
Email: ravir@ualberta.ca
Office: 442-E Old Arts.

Dear Language Instructor,

Computer Technology is increasingly becoming a valued tool for the language teacher. Applications of CALL (Computer Assisted Language Learning) vary not only from individual to individual but also from institution to institution. Research in the field seems to be going in all directions from software development to Computer Mediated Communication. The computer's ability to combine sound, image, text and video all together in an attractive multimedia package creates numerous opportunities in the world of language acquisition.

For my Master's Thesis in Humanities Computing (MLCS) at the University of Alberta, I am conducting a survey which will evaluate the current use of computer technology in the department of Modern Languages and Cultural Studies, East Asian Studies and at the Faculté St Jean. More specifically, I am interested in finding out how language instructors in these departments understand and incorporate technology into their instruction, if they do at all. Data collected from the survey will help me understand the dynamics of computer use in language instruction.
For instance, I will be in a position to examine motivating factors, favorite practices, attitudes and even draw parallels between all these intertwining factors affecting the use of computer technology by the language instructor. Finally, I hope to find out whether there is a certain underlying pattern channeling the use of computer technology in language teaching.

The survey starts with some background questions on your familiarity with computer technology. The other sections include questions about training, use of computer technology, attitude and research.

I wish to thank all those who take some of their precious time to participate in this survey

Consent to Participate in Research

Your participation in this survey is voluntary, confidential and strictly anonymous. To safeguard your anonymity only my research project supervisor and I will have access to survey data collected. Also, data collected will be used in such a way that no specific individual can be identified by the things she/he said. **Please send your responses to me within ten days, by Friday April 2nd, 2004. You can either leave the completed survey in my mailbox or in the envelope outside my office door (442-E Arts).**

After completion of the final report, the raw data collected by this study will be destroyed. Results of this survey may be used in future presentations or publications, in compliance with the University of Alberta Standards for the Protection of Human Research Participants outlined at http://www.ualberta.ca/~unisecr/policy/sec66.html.

For more information or any other concerns, you may contact me (email: ravir@ualberta.ca) or my Thesis supervisor, Dr. Martin Beaudoin (email: martin.beaudoin@ualberta.ca)